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Sony 4K projector ■ Philips AmbiLux ■ Samsung UHD Blu-ray

Sonic sensations
The Dolby Atmos discs you must own

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We check out a garage-turned-cinema

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Tel: 0844 412 2262
From outside the UK: +44 (0) 1689 869 840

Distributed in the UK by Seymour Distribution Ltd

TEST WALL IMAGES:
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©ISTOCKPHOTO.COM/SIMON INGATE



Home Cinema Choice, ISSN 1559-6276, is published monthly with an additional issue in May by AVTech Media Ltd, a division of MYTIME MEDIA Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN9 6HF, UK. The US annual subscription price is \$59.99 (equivalent to approximately 106.00 USD). Airfreight and mailing in the USA by agent named Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Jamaica, NY 11431. US Postmaster: Send address changes to Home Cinema Choice, Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at CDS GLOBAL Ltd, Tower House, Sovereign Park, Market Harborough, Leicestershire, LE16 9EF. Air Business Ltd is acting as our mailing agent.



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New BDs on test in Playback, p95



WELCOME

A bigscreen TV is often the centre-piece of a home cinema system. The smallscale chunky sets of yesteryear have been consigned to the dump, replaced by super-sized models offering Ultra HD resolution, High Dynamic Range playback and Smart connectivity. Choosing your next set can seem daunting, so this issue we're looking at a variety of options, from sub-£1,000 bargains (p57) and Panasonic's top-of-the-range LED (p40) to the latest flagships to come out of the IFA technology show (p18).



As TV technology moves forward at a rapid rate, we're here to make sure you keep up!

On the other hand, if you're after a projector rather than a TV for your movie room, head over to p48 for an in-depth look at Optoma's groundbreaking LED beamer. This can craft an image 300in wide – large enough for even the most lavish home cinemas. Enjoy the show!

Mark Craven
Editor



MENU



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The UK's most experienced TV tester cut his teeth as an early HCC staffer

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BULLETIN

→ **NEWS HIGHLIGHTS** SONY HT-RT5 soundbar makes wireless surround sound simple
BT SPORT UK telco plans to add Atmos audio to 4K TV broadcasts **IMAX** Laser projection system installed at iconic London cinema **SONY** Updated SXRD projector range adds HDR **NEWS X 10** The hottest news in bite-sized chunks **JURASSIC WORLD** Prehistoric blockbuster takes a bite out of BD and DVD **AND MORE!**

Opticon primed

DALI Opticon → www.dali-uk.co.uk



This month sees the arrival of a new high-spec speaker range from Danish manufacturer DALI. The seven-strong Opticon family employs wood-fibre woofers, hybrid soft dome/ribbon tweeter modules and bespoke magnet motor systems, and consists of two standmounts (Opticon 1 and Opticon 2), three floorstanders (Opticon 5, Opticon 6 and flagship Opticon 8), the Opticon LCR and timbre-matched Opticon Vokal centre. All are available in a choice of Silk Matte White, Black or Walnut finishes, with prices starting at £500 for a pair of Opticon 1s.

HCC ONLINE...

Looking for breaking AV news, blogs, features, & reviews? For your daily fix visit us at www.homecinemachoice.com Follow us on Twitter @hccmag

Surround sound(bar)

Sony HT-RT5 → www.sony.co.uk

Sony promises a more authentic surround sound experience from its new £600 HT-RT5 soundbar, thanks to the inclusion of two wireless rear speakers in addition to the usual subwoofer – there's also a supplied microphone and Digital Cinema Auto Calibration DX technology to optimise performance to

your listening environment. Other features of the HT-RT5 (total claimed power, 550W) include Spotify Connect and Google Cast functionality, three HDMI inputs and one out (with HDCP 2.2/4K pass thru), plus SongPal Link for integration with other Sony multiroom gear. Look out for a review soon.



Remotes replaced



Universal remote specialist One For All has launched a new range of replacement controllers aimed at owners of LG, Panasonic, Philips, Samsung and Sony TVs who have lost or damaged the ones originally supplied with their flatscreen. The substitute zappers are available from One For All's website, priced £18.99 each, and are 'guaranteed 100 per cent compatible' with the relevant brand's screens. Having spotted another use for its replacements, the company is also offering a bulk rate for hotel chains. www.oneforall.co.uk

Flagship soundbase



Canton has made its EISA Award-winning DM90.3 soundbar/soundbase available in the UK through online retailer Amazon. The German brand's flagship audio add-on will set you back around £850, can support up to 40kg and employs 200W amplification to power its 10 custom-made drivers (two tweeters, four mid-range and four subwoofers). In addition to apt-X Bluetooth streaming, the DM90.3 offers three HDMI inputs and one HDMI out, with support for ARC, 3D and 4K pass-through. www.canton.de/en

Clearing the way



The Chord Company has launched Clearway, the successor to its Carnival SilverScreen loudspeaker cable. This new speaker wire promises reduced interference and mechanically-induced noise thanks to the use of high-quality oxygen-free copper, FEP insulation and high-density foil shielding. The Clearway speaker cable costs £10 p/m unterminated, but a variety of factory terminations, including 24-karat gold-plated banana plugs and BFA Camcon connectors, are also available. www.chord.co.uk

BT Sport plans for Atmos

Pioneering telco wants to add next-gen audio to its 4K broadcasts

BT isn't content with pioneering 4K Ultra HD live transmissions for its sports channel – the company is also planning to add Dolby Atmos audio to its coverage. The news was broken to *HCC* by Jamie Hindhaugh, COO for BT Sport and BT TV at Silverstone, where the team were delivering the British MotoGP to BT Infinity broadband subscribers. Hailed as the world's largest 4K live outside broadcast, the event saw 19 UHD cameras deployed for the production.

'The next big generational change in TV will be sound,' predicts Hindhaugh. 'In many ways, audio is the forgotten part of the TV production chain. Dolby Atmos offers a level of personalisation and sense of presence that we haven't heard before. We want our broadcast to be your ticket to the game, to feel like you're there. We think that high-end customers will want 5.1.4. It's not going to be for everyone, but as part of our more premium product offering it will really enhance the experience.'

Personalisation is 'a big thing' confirmed Andy Beale, BT chief engineer. 'We think giving viewers subtle control over commentary and crowd noise is really interesting. You can control the volume, turn off the commentary completely, or have local radio commentary instead.'

HDR (High Dynamic Range) is also a possibility for the future, with Hindhaugh revealing that the new BT YouView-based set-top box can handle it. 'And because we control the TV platform, we're in a



Jamie Hindhaugh: 'Atmos audio won't be for everyone, but as part of our premium product it will enhance the experience'

position to roll that out for our customers.' He also admitted to being surprised at just how smoothly the transition to 4K broadcasting was going. 'Our ambition was to do one live event a week, but now we're looking at hybrid production – where we shoot in 4K but broadcast HD, so we are already looking to do more events a year.' The type of coverage is also expanding, with squash next to be shot live. 'It looks phenomenal. The glass courts are stunning...'

Ultra HD ambitions

The MotoGP event was produced in partnership with commercial and TV rights holder Dorna, with content production by North One. 'We are offering complete native 4K coverage of the event. The only time we use HD is for the onboard cameras, used for the BT Box PIP. These are uprezzed to 4K.'

Nerve centre for the operation is the first 4K OB truck in Europe. 'We currently have a completely separate workflow and overlay for UHD,' explains Hindhaugh. 'This means separate cameras, separate

commentators. And for the first time, we also have 4K radio cameras.'

'When we shoot Premier League football we use eleven cameras, against an HD production which is typically 19-25. 4K enables us to create that sense of being at the match, watching how the game plays out.'



Up close and personal with English racer Bradley Smith

PLAYLIST...

Team *HCC* spins up its disc picks of the month

Batman: Arkham Knight (Xbox One/PS4/PC)

The final part of Rockstar's Batman trilogy has kept our cinema system buzzing with the sound of super-powered next-gen gaming action.



Fast & Furious 7 (All-region BD)



Exactly the sort of hard-driving action that Blu-ray was made for. If only we could make it to the end without shedding a tear...

The Third Man (All-region BD)



StudioCanal's new 4K restoration breathes fresh life into this iconic British film noir on Blu-ray. Quite simply unmissable.

Happy Valley: Series One (All-region BD)



A belated but extremely welcome hi-def outing for this superb cop drama starring Sarah Lancashire.

Mad Max Collection (All-region BD)



The arrival of *...Fury Road* meant that we just had to re-watch the original trilogy as well.

EXTRAS...

Small items that could make a big impression

Ultimate Star Wars



DK's mammoth £35 slipcase-clad tome makes good on its promise to be the ultimate guide to the *Star Wars* universe, with entries on characters, locations, vehicles and technology from the first six films, and the *Clone Wars* and *Rebels* animated TV series. Our only minor gripe concerns DK's decision to organise the entries chronologically, rather than alphabetically.

True Detective: Music from the HBO Series



Produced by T-Bone Burnett and featuring 14 tracks from the show's first two seasons, this moody CD soundtrack is a great buy for fans of the acclaimed HBO crime series. It's available now, for around £13, from www.hboshopecu.com.

Great Showdowns: The Revenge



Artist Scott Campbell returns with a third hardback collection of distinctive art that distils the essence of a movie to a single face-off. Once again, half the fun comes from trying to recognise them all. Released by Titan Books, priced £10.

West End IMAX gets upgrade

New laser projection system makes European debut at London cinema

London moviegoers can expect a taste of the next-generation of IMAX cinema technology when they visit the super-sized screen at the Empire Leicester Square. The flagship cinema is about to become the first IMAX cinema in Europe to be fitted out with the brand's new laser projection wizardry, alongside an upgraded sound system.

Described by Andrew Cripps, President of IMAX EMEA, as 'providing film fans with an experience unlike anything they've seen before', the new 4K dual-laser projection system has been designed from the ground up for IMAX's largest screens and comes equipped with a new optical engine and a suite of proprietary IMAX technologies. While the cinema innovator was unable to provide HCC with detailed specifications for the new gear, it claims that it's capable of projecting an image 'with maximum resolution and sharpness, unparalleled 2D and 3D brightness, industry-leading contrast and an expanded colour gamut.'

Next-gen sound

IMAX is also promising the Empire theatre will offer 'even greater power and precision for the ultimate audio immersion'. The cinema's IMAX Experience has been upgraded to 12 discrete channels, plus sub-bass; this includes additional side channels and new overhead channels for enhanced positional audio.

'From the earliest days of the moving image the Empire Leicester Square has been at the forefront of advances in cinema technology,' boasted Empire Cinemas CEO Justin Ribbons. 'The introduction of IMAX with laser further reinforces our commitment to providing the most cutting-edge, immersive viewing experience to our customers. It reinforces



Justin Ribbons: 'From the earliest days of the moving image we have been at the forefront of advances in cinema tech'

the Empire Leicester Square's position as home of the UK's best cinema-going experience for years to come.'

The first movie to benefit from the screen's new laser projector system and upgraded sonics will be Robert Zemeckis' *The Walk*, which opens on October 2 and is based on the true story of French high-wire artist Philippe Petit, who gained fame in 1974 for a tightrope walk between the Twin Towers of the World Trade Center. Following this, IMAX aficionados can look forward to Guillermo Del Toro's supernatural thriller *Crimson Peak*, the new James Bond film *Spectre* and *Star Wars: Episode VII – The Force Awakens*, the latter of which was partially shot using 65mm IMAX cameras.

Head over to www.empirecinemas.co.uk or call 08714 714 714 for ticketing information.



The Force Awakens... at IMAX cinemas from December 17

Hisense launches budget 4K TVs

Low-cost trio of Ultra HD flatscreens arrives on UK shelves this Autumn

Chinese TV corp Hisense is making good on its promise of taking an aggressive stance on pricing as it launches a sub-£500 model into the UK's 4K/Ultra HD TV market this Autumn.

Part of the brand's new three-strong K321 range of UHD TVs, the 40in LTDN40K321UWTSEU will touch down in Blighty priced at £450 – Hisense says it will make 'premium UHD TV accessible to everyone.' It's joined by 50in and 55in models, set to retail at £600 and £700 respectively.

The trio of screens feature four HDMI inputs (two v2.0) and are HDCP 2.2-compliant. Additional connectivity includes USB 3.0, optical digital audio

out and RF for the onboard Freeview HD tuner.

Accessing the Hisense Smart TV platform (via Ethernet or Wi-Fi adaptor) brings 4K content in the shape of Netflix and YouTube – the screens are compatible with both the HEVC and VP9 codecs. Other Smart features include a web browser and DLNA media playback, while the company says BBC iPlayer and Amazon Prime apps will be added via a firmware update by the end of November.



Hisense UK's debut range of affordable 4K/Ultra HD TVs includes 40in, 50in and 55in models

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DIARY

Our calendar ensures that you don't miss out...

→ SEPTEMBER

30: The Martian

Ridley Scott directs this high-concept sci-fi thriller about a NASA astronaut stranded on Mars when the rest of his crew are forced to evacuate. Blasts off at UK cinemas today. www.fox.co.uk

→ OCTOBER



05: Mad Max Anthology

Racing onto shelves alongside *Mad Max: Fury Road* (see p98), this five-disc boxset

includes all four films in the series, plus four art cards and the bonus *Madness of Max* feature-length documentary. Available to own on both Blu-ray and DVD. www.warnerbros.co.uk

12: Tremors 5: Bloodline

They've been dormant for a decade, but the Graboids, Shriekers and, erm, AssBlasters are back in this DTV creature-feature shot in South Africa. Hunt it down on DVD and Blu-ray. www.universalpictures.co.uk

14: CEDIA Expo 2015

The global showcase for the home technology industry pitches up in Dallas this year. The four-day expo promises kit from more than 500 exhibitors, plus the usual training seminars and networking events. www.expo.cedia.net

16: Crimson Peak



Director Guillermo del Toro hopes to get you in the mood for Halloween with a supernatural chiller that horror scribe Stephen King has described as 'gorgeous and terrifying'. Find out if *Crimson Peak* lives up to the hype when it opens at UK cinemas. www.universalpictures.co.uk

19: Nightmares in a Damaged Brain

The UK indie 88 Films brings another former 'Video Nasty' to Blu-ray with this addition to its Slasher Collection range. Extras are set to include a pair of audio commentaries, a look at the film's 42nd Street locations and an interview with distributor Tom Ward. www.88films.co.uk

22: HCC #253

The next issue of your favourite home cinema magazine hits the stands today packed with hardware tests, features, outspoken opinion and in-depth software reviews. www.homecinemachoice.com

Bringing HDR to 4K projection

Sony's new SXRD UHD kit ramps up brightness, extends lamp life too

Sony has updated its 4K SXRD projector range, adding HDR (High Dynamic Range) support for the first time. Two new Ultra HD models, the HDR-enabled VPL-VW520ES (pictured) and VPL-VW320ES, have been announced as replacements for the VW500ES and VW300ES.

Support for HDR content, such as UHD Blu-ray, will be the key difference between the two models, predicts Sony sales manager Jacob Barfoed. The VPL-VW520ES will also offer Auto-Calibration, a feature previously only available on the range-topping VPL-VW1100ES.

Both new projectors will be available with a white finish, due to consumer demand, as well as standard black. The move is said to reflect growing interest in media room installations, where white is a more natural fit, rather than dedicated cinema spaces.

Michael Kay, of Sony's trade distributor Marata Vision, told *HCC* that the arrival of BT's UHD Sports channel has had a dramatic impact on demand for 4K projectors. 'There has been a huge upsurge, not least from pubs that now want to be able to show 4K football.'

The new models will employ a long-lasting lamp, which the company says offers 6,000 hours before deterioration becomes evident. Dismissing the longevity of Epson's rival EH-LS10000 laser projector (reviewed, *HCC* #247), Barfoed insisted that the subject of lamp replacement should no longer be a major concern for users: 'Lamp prices aren't too much of an issue. Our new lamp allows you to watch a movie a day for eight years. Our B2B laser projectors are spec'd at 20,000 hours to get to 50 per cent brightness; that's the equivalent of three lamp changes.'

Dynamic contrast on the UHD projectors



Jacob Barfoed: 'Lamp prices aren't too much of an issue. Our new lamp allows you to watch a movie every day for eight years'

is quoted at 300,000:1, with brightness at 8,000 Lumens.

The company hasn't released details of peak brightness of the HDR projector, but promises 'higher contrast, deeper blacks and exceptional dynamic range.'

HDMI inputs are 2.0 with HDCP 2.2 compliance. Colour delivery is 4:2:0 at 8-bit. For simpler 3D installation, the RF transmitter is built in to the bodywork. Both new models will sell for the same as their predecessors, £6,000 and £8,800 respectively.

Full HD not forgotten

The company has also introduced a new Full HD projector, the VPL-HW65ES. It uses the same long-life lamp as its 4K stablemates, and has an integrated RF 3D transmitter. A USB port is provided for firmware updates. Brightness has been improved to 1,800 Lumens, while contrast is rated at 120,000:1.

The VPL-HW65ES also offers full IP control for integration into home systems. The projector is part of the Crestron Connected program and has Control 4 drivers. 'We wanted to make it more install-friendly for the home automation market,' says Barfoed.

All of the new projectors will ship this Autumn. Sony says it will also release a calibration app, dubbed Projection Calibration Pro.

Barfoed also believes that the increasing size and falling prices of flatscreens isn't denting demand for projectors. 'If you want a 90-100in screen, that's easily done with projection. But if you want to put a 90in panel into your

house, just getting it on the wall remains a challenge.'



This month's top 10 news stories in handy, bite-sized chunks...



1 Luxury cinema seating

Looking to add a little luxury to your movie den? Then you may want to pop along to Harrods and take a look at the Sedi range of bespoke home cinema seating from Cine Italia Seating, which the high-end department store recently added to its Technology Space. For the in-store display, Cine Italia Seating collaborated with fabric and textile brand Jason D'Souza to introduce a new selection of designs, including a three-seater in ostrich and leather, plus a pair of leather single-seaters. Visit www.cine-italia-seating.com for more info.

2 Long live the New Flesh!

Arrow Video's recent limited edition Blu-ray release of David Cronenberg's *Videodrome* (see HCC #250) turned out to be one of the label's biggest hits to date, with the entire run selling out within 24 hours of release. Good news if you missed out: a non-limited single-disc Blu-ray is scheduled for Dec 7.

3 Amazon Prime goes offline

Amazon Prime Instant Video has introduced a new download feature, allowing subscribers to download selected TV shows and films to iOS or Android devices to watch later. 'We are proud to be the first and only online subscription streaming service that enables offline viewing,' says Jay Marine, Vice President of Digital Video at Amazon EU.

4 Tesco trials vinyl with Maiden

The vinyl market received another boost at the start of September when Tesco decided to stock the triple-vinyl LP version of Iron Maiden's new album *The Book of Souls* in 55 of its Tesco Extra stores across the UK. The supermarket chain also ran a promotion with the band's Trooper ale, where metalheads could pick up a bottle for just £1 when also buying the £24 album.

5 High cost of piracy

A court in Northern Ireland has been told that a 30-year-old Londonderry man who pleaded guilty to running a film piracy website from his bedroom put the industry at risk of losing around £120 million in revenue.

6 LG upgrades WebOS 1.0 TVs

LG Electronics is punting a free Value Pack Upgrade for owners of its first-gen WebOS Smart TVs. The package includes WebOS 2.0's four main features (My Channels, Quick Setting, Input Picker and Live Menu), plus a quicker boot-up time and faster response when switching between applications. Owners of WebOS 1.0 sets with the automatic update option enabled will receive the upgrade immediately. If it's not enabled, a pop-up menu will guide users through the upgrade process.

7 EE TV gets personal

Sticking with upgrades, EE has launched a series of upgrades for EE TV users. Focused on personalisation and 'social' viewing, the software update includes a second screen app and the ability to share details of what you've watched on social media at the touch of a button; an all-new 'My TV' section accessible via the Home menu; improved search capabilities and navigation; and additional channels including MUBI.

8 Big bear

Family blockbuster *Paddington* has become the first title to surpass the one million sales milestone for a UK DVD and BD release this year. Unsurprisingly, distributor

StudioCanal hopes to keep the sales rising with the introduction of a re-release with a limited edition 3D sleeve in the run-up to Christmas.

9 BBFC boss to retire

David Cooke, the Director of the British Board of Film Classification, has announced that he will retire next March after 12 years in the post. His tenure has seen two public reviews of the classification guidelines and the introduction of voluntary online regulation services for VOD content.

10 Fear... breaks records

The pilot episode of *Fear the Walking Dead*, AMC's spin-off from the hit zombie drama *The Walking Dead*, shattered records for a cable series launch on its US broadcast at the end of August. The show's debut episode pulled in an impressive 10.1million viewers, surpassing the 7.7million who watched the previous record holder – TNT's *Raising the Bar* – back in 2008.



PREMIERE

What's happening in the world of TV and films...

Yost has the power!

Sony Pictures has hired *Thor: The Dark World* scribe Christopher Yost to write the script for its *Masters of the Universe* movie. Fans should be pleased to learn that the action takes place on Eternia this time out!

Diesel teases new sequel



Vin Diesel has revealed that he'll start shooting a new *xxX* sequel in December. We've no idea how they plan to get around the fact that Diesel's character was confirmed as being dead in 2005's *xxX: State of the Union* (aka *...The Next Level*), which starred Ice Cube instead, but we wouldn't be surprised if they simply ignored that one – just like cinema audiences did.

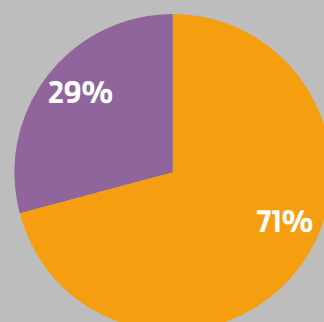
ABC's most wanted

Having already taken over cinemas, Marvel's plans for the small screen continue to grow, with the news that US TV network ABC has ordered a pilot for *Marvel's Most Wanted*, a spin-off from its current *Agents of S.H.I.E.L.D.* series.

WE ASKED...

Have you ever used a 'room EQ' system to improve the sound of your home cinema?

Yes
No



Results from www.homecinemachoice.com
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A full-page background image featuring Chris Pratt as Owen Grady, standing with his arms crossed in a jungle. To his right is a large T-Rex with its mouth open, showing sharp teeth and a red tongue. A bright circular light, possibly from a flashlight or vehicle headlight, is visible in the bottom left corner.

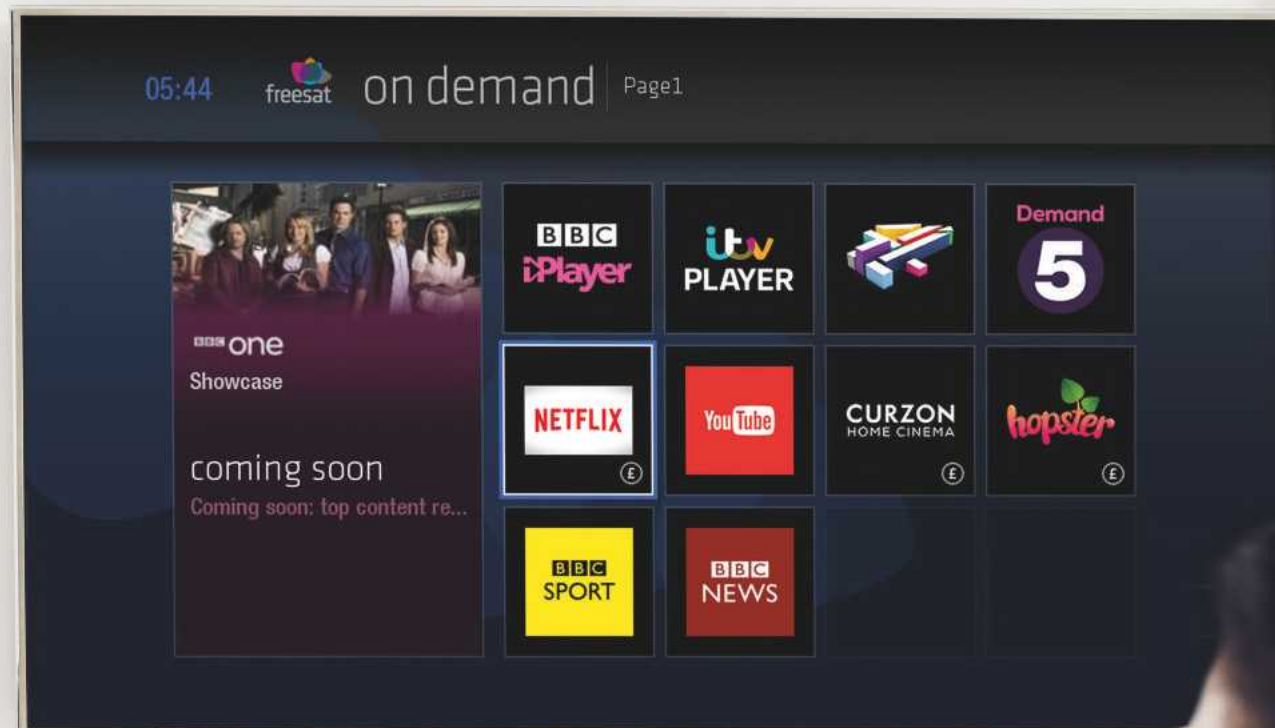
Dino-mighty!

Jurassic World → Universal Pictures → All-region BD & R2 DVD

Jurassic World, the year's biggest box office hit, will be stomping, roaring and biting its way onto DVD, Blu-ray and 3D Blu-ray on October 19 courtesy of Universal Pictures. In addition to Full HD visuals and DTS-HD MA 7.1 audio (no Atmos mixes here, sadly), the two Blu-rays also promise plenty of bonus features, including an in-depth look at the making of the movie, deleted scenes, an interview with director Colin Trevorrow and leading man Chris Pratt, a tour of the film's 'Innovation Center' and a look at the creation of *Jurassic World*'s prehistoric stars.

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IFA 2015: home cinema highlights

For five days in early September, Berlin hosts the world's most popular consumer electronics show. **Team HCC** was there to soak up the AV gossip



Panasonic joins OLED push

'Welcome to the future of TV picture quality and design,' says Panasonic of its debut OLED TV, the curved, 4K-resolution TX-65CZ950. And the future certainly drew crowds – the 65in screen was continually accompanied by a gaggle of IFA show-goers smitten by its imagery.

HDR-capable and endowed with an Alcantara finish on its rear, the screen is inked to retail at around the £7,000 mark, making it more expensive than its rivals from LG. Yet Panasonic argues that its implementation of OLED is worth the outlay, courtesy of in-house processing tech and Hollywood grade-tuning – opt for the True Cinema preset to witness the TX-65CZ950 working as calibrated by movie colourist Mike Sowa (*Oblivion*). The set is also the first 4K OLED display to be certified by THX.

First impressions are very favourable. With deep blacks, wide vivid colour and stunning levels of detail, it had Team HCC drooling in anticipation. If you have a spare £7K, this seems a solid way to spend it. And it'll be available soon.



Yamaha adds Atmos/DTS:X to YSP lineup

IFA gave us our first taste of Yamaha's YSP-5600, a premium soundbar (or 'digital sound projector') with Dolby Atmos (and future DTS:X) chops. The company offered demos in a mocked-up living room within a glass cube, complete with mirrored ceiling, and employed a bespoke BD disc laden with Atmos clips. Showcase moments from *Transformers: AoE* and *Unbroken* proved the 'bar certainly has impressive steering (delivered via 46 drivers), rich bass (there's a partnering sub) and creates a tangible sense of height. Yamaha says its 3D sound is equivalent to a 7.1.2 soundstage.



Philips takes Ambilight to the next level

Philips continues to think outside of the box when it comes to the flatscreen market and has taken its Ambilight line in a new direction with its AmbiLux TV. A 65in 4K LED set, this bins the traditional LED array of Ambilight in favour of nine pico projectors squirrelled into the back panel. These cast a blurry version of the TV's picture onto the wall behind the set. The result is a wildly dynamic light show. Opinions were mixed as to the practical benefit of this – gaming seems a possible use – but there's no doubt that the end result looks impressive, almost hypnotic. The catch is that the set needs to stand 20cm away from a large wall for the system to really work.



Ultra HD Blu-ray: better late than never...

Samsung seized the IFA limelight by outing its debut Ultra HD Blu-ray spinner, the UBD-K8500. Don't rush to pre-order, though: both pricing and availability remain under wraps, with a Spring 2016 launch mooted

by Samsung sources (and 20th Century Fox confirming disc releases including *Kingsman: The Secret Service* and *Exodus: Gods & Kings*). This means that the Christmas 2015 target hinted at by the Blu-ray Disc Association last year has been missed.

The deck appeared on a stand in the cavernous Samsung booth. An initial look revealed it to have a subtle curve to its chassis – like a Samsung high-end TV, in fact – and svelte design. It's not a full-width, heavyweight deck. So it'll be a major downer if it's eventually priced like one.

A peak around the back turned up a slight surprise – in its current guise the UBD-K8500 has a single HDMI output (pictured). With Ultra HD BD employing HDCP 2.2 copy



protection, this may make the spinner a no-go for those hoping to route it through a non-HDCP 2.2 AV receiver...



IFA 2015 IN BRIEF

Heavy-metal headphones and catch-up TV

Maiden Audio finally breaks cover



First teased at CES, the team up between Onkyo and heavy metal giants Iron Maiden has been

officially unveiled. And, yes, it's a pair of headphones, although none of us would have guessed the name – Ed-PhOn3s – or the fact they would sport lairy Iron Maiden artwork on the ear cups. These cans are, if you hadn't realised, targeted at metal-heads and no one else.

Panasonic first for Freeview Play



Owners of Panasonic sets still waiting for the rollout of Freeview Play can rejoice – the company confirmed during IFA that the firmware update will happen in October, bringing roll-back EPGs and full UK catchup to the party.



LG revamps OLED range

While its OLED thunder was stolen somewhat by Panasonic's entry into the market, LG found another avenue to explore regarding its premium display tech – flatness! The Korean marque unloaded a quartet of new screens at Berlin and two (the 55in and 65in EF9500 models) give a curved form factor the cold shoulder. For some, this may be reason enough to audition.

Furthermore, both of these sets are also HDR-ready (as is the new curved 55in 55EG9200), including via HDMI for external sources, something not feasible with previous models. And while rival companies including Samsung and Philips play down OLED's High Dynamic Range prowess, LG remains resolute in defending its emissive technology. 'Only OLED panels can deliver the absolute black that makes the bright colours of HDR look even more impressive,' says the corp, adding: 'OLED TVs are able to render the required HDR light range at lower peak brightness.'

An intriguing aspect of LG's dimly-lit OLED stand was HDR footage lensed by the BBC Research & Development gang and broadcast via DVB-T2. Including London's New Year's Eve firework display, it didn't lack for visual snap.

Pricing on the new screens was still TBC, but with LG executive VP Brian Kwon boasting that its strategy for OLED is to sell twice as many displays in the second half of 2015 as it did in the first, they may well be within your reach.



Projectors assemble!

JVC and Epson targeted home cinema enthusiasts with new projectors at IFA, but aimed at different ends of the price scale.

The former unveiled its first new models in two years, having decided not to launch hardware in 2014. Those hoping the intervening period would

see JVC rustle up a native 4K model will be disappointed, though: its latest trio still sport the familiar 4K pixel-shifting, albeit newly tuned. Existing fans of the brand's D-ILA models will, however, appreciate the implementation of HDMI 2.0/HDCP 2.2 support, and HDR compatibility. JVC claims its models deliver the highest brightness and contrast in their class, with the flagship DLA-X9000 (£8,500) offering a contrast ratio of 150,000:1 and 1,900 Lumens brightness, the latter a 46 per cent jump on its predecessor. Step-down models are

the X7000 (£5,700) and the X5000 (£4,000).

Visitors with more meagre budgets were greeted at Epson's booth by three Full HD LCD projectors ranging between £550 and £700. All offer dual HDMI inputs, 3D playback, 5W speakers and newly-minted noise cancelling circuitry. The top-flight EH-TW5350 (pictured below) throws in Miracast and split-screen prowess.





Sony continues to style it up

IFA 2015 saw the Big S returning to the astonishingly slim form factor of its previous X90C TV (released in Spring of this year) and cranking up the screen real estate – its new X91C is a wall-bothering 75in, yet still manages to be a mere 15mm thin across much of its frame. A custom-designed wall-mount is again supplied to facilitate flush installation.

Unlike its passive 55in/65in forebears, the 4K X91C lists active 3D playback among its specifications. This means the panel has been swapped from IPS to VA-type, which should



yield an improved black level in place of some viewing angle leeway.

In addition to the X91C, Sony also launched two new entry-level 4K screens, the 49in and 55in X80C models.

Perhaps the most surprising announcement from Sony at IFA, however, was the news that its HDR firmware rollout is now scheduled to include its affordable X85 (flat) and S85 (curved) Ultra HD sets – screens that, along with the X90C, had previously been pegged as non-HDR compatible. Owners of those should be happy.

IFA 2015 IN BRIEF..

Streaming's bright future and yet more multiroom

Prime-time for HDR



Amazon has outflanked Netflix by launching HDR streaming on its

Amazon Prime platform in Europe. Shows including *Mozart in the Jungle*, *Transparent* and *Red Oaks* are available now, with LG and Sony at IFA both confirming compatibility with their HDR TVs.

Philips says multiroom audio is Izzy



Offering multiroom audio without the need for Wi-Fi is the USP of Philips' new Izzy speaker range. The lineup will launch with a pair – the BM5 is a standard speaker, while the BM50 (pictured) includes CD, radio and USB playback. Bluetooth tech is used to link up to four Izzy models at a time, with no app required for setup.



Sound developments

New AV audio gear was present at the show if you sniffed about. Lurking on the Yamaha stand was the CX-A5100 (left), an upgrade on the CX-A5000. This standalone processor (tether it to the company's MX-A5000 11-channel power amp...) adds Atmos, DTS:X and MusicCast (plus more) to the already formidable specification.

Pioneer, meanwhile, made little song and dance about the arrival of its range-topping SC-LX89 receiver, the follow up to the SC-LX88. It was sat on a stand looking a tad unloved, to be honest. Still, with key tweaks including DTS:X decoding and HDCP 2.2 support, married to its 9 x 220W amp stage, it looks well-set to appeal to high-end film fans.





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Is it time for home cinema to Kiss and wake up?

With its wireless Kiss technology, US company Keyssa wants to realise the dream of cable-free home entertainment. **Barry Fox** can't wait to see it in action



Keyssa's Steve Venuti
— previously the President
of HDMI Licensing

WE'VE ALL BEEN there. Grovelled around the back of an AV system looking for the plug that needs jiggling in its socket to restore a mysteriously lost connection. We've trodden on a plug, and broken it, and so made an expensive cable useless; or broken the little plastic lock leaf on the RJ45 plug at the end of a carefully-laid Ethernet network cable.

Worse still, we've tripped over a lead, wrenched the plug and broken the socket in a pricey piece of gear. And how many smartphones and tablets have been wrecked by someone pushing the USB connector home the wrong way round? What a wonderful world it would be if connections no longer relied on plugs.

And Wi-Fi is not the magic bullet; a recent report from Arris Consumer Entertainment Index showed that two-thirds of people using Wi-Fi at home have problems with it.

So imagine a piece of hardware with a hidden microchip that talks by radio waves to a matching chip in another slab of kit. Just put them together and they connect. This is how wireless chargers already work and it's how NFC (Near Field Communications) handles contactless payments and Bluetooth pairing.

But NFC is very slow,

handling only a few hundred kilobits per second. You'd die of old age before a movie got transferred. This is where Kiss technology – from US company Keyssa – comes in. Think of it as NFC with a blistering transfer speed of 6 Gigabits a second. That's faster than the USB 3.0 wire standard (5Gbps) and means an HD movie file can squirt between devices in a few seconds.

Dream connection

Normally Kiss would sound too good to be true; a pipedream from a start-up company touting for dollars to try and make an armchair idea work.

But Keyssa is not your usual bunch of techie hopefuls. The Californian company, formerly Waveconnex, was founded in 2009 and is run by Eric Almgren, who co-founded Silicon Image, the people behind the HDMI standard. Chairman Tony Fadell previously founded Nest, known for remote security and home automation, and was before that a key player at Apple on iPod and iPhone design. Keyssa is backed to the tune of \$47million from biggies including Dolby, Intel and Samsung.

Steve Venuti is the new VP Strategic Solutions. Before that he was President of HDMI Licensing, the tough body which controls the HDMI standard. So the people who made HDMI ubiquitous are now jumping ship for Keyssa.

Venuti recently told *HCC* how and why he made the move: 'HDMI Licensing won a second Emmy Engineering Award for the HDMI interface, which was wonderful, but when they introduced me as the "President of that legacy connector company"

I thought "It's time to move on". I moved to Keyssa in Spring 2015. I had known the CEO Eric Almgren from Silicon Image.

'I've spent a dozen years evangelising the single connector and now I'm evangelising no connector plug and receptacle. Mechanical connectors break. They radiate interference, they look ugly and they prevent sleek, waterproof design.'

Kiss relies on chips that talk to each other at 60GHz, over a range of a few millimetres, and exchange data at the aforementioned speed of 6Gbps. 'It's very sweet technology,' enthuses Venuti. 'We call it Kiss because connection is like kissing. With 6Gbps you can use it for a USB 3.0 connection at 5Gbps or for DisplayPort. If you want faster rates you just add more chips to add more bandwidth; you gang Kiss paths together.'

'Kiss is protocol agnostic. There's no software to set up. It acts as a wire. And it consumes very low energy. Not like Wi-Fi. I love giving a demo to technical people. They marvel. One demo we give is a sleeve for a phone. Kiss will later be built into the phone but for the time being we built it into a sleeve. You sit it on top of a laptop and transfer 1GB in three or four seconds.'

A lover of large files

The appeal of Kiss extends beyond handheld gadgets. 'For home cinema, we see Kiss as a way of exchanging large uncompressed files very quickly,' says Venuti. 'The cloud is a wonderful thing but not the most efficient way to transfer. If you want big files available quickly you are going to have to do it some other way. Over-the-top [OTT] delivery is fine but it needs huge bandwidth and is very slow and costly, especially if people have data plans.'

'Kiss would work for networking but we are focussed on high-speed, point-to-point, device-to-device. For instance there is interest, especially in Japan for the 2020 Olympics, in kiosks for downloading large files, for rental or distribution of movies.'

'You would set your tablet or your cellphone down and transfer huge files, they could be 4K files, to the device. Then you take the device home and set it down on your set-top-box or PVR and download to that. Or you could stream to a projector. This technology is so new we don't yet know how all this will unfold.'

All this begs the question: if Kiss is so wonderful, why hasn't anyone else done it before? Venuti

answers by explaining that tolerances are very tight. 'It's like when we first launched HDMI. There was so many pains trying to get people to change their mentality from analogue to digital. Every new technology has a learning curve.'

Although Keyssa is cagey about details of how Kiss works, the company has filed over a dozen patents which anyone can read – if they know where to find them – to get a good insight into the problems that had to be solved.

Data rates available from 60GHz in the EHF (Extremely High Frequency) band can be literally a thousand times higher than for conventional wireless devices. But it's only recently that advances in semiconductor circuit design have made EHF consumer chips affordable. They were previously used only by the military or for professional telecoms.

But at EHF minor anomalies in the circuitry, such as impedance variations, corrupt the signal. EHF connections must operate at very low power, to avoid interference with the equipment they are connecting, so their reliable working range is only a few millimetres. Precision positioning of the mating chips, and their tiny waveguides and transmit-receive antennae, is vital. Everything is encapsulated in plastics to keep the components in place and clean.

One trick patented by Keyssa is to use magnets which attract and repel the two halves of a Kiss coupling, to ensure correct, snap-fit alignment. One illustration I've seen shows a cable with magnetic coupling, very similar to an Apple 32-pin plug.

So, when will we see working proof of Keyssa's claims? Soon, apparently. 'We will be at CES giving demonstrations, definitely,' Venuti told me. 'But we are going to launch in the Fall and two large branded companies are hopefully going to have products by the end of this year. I'm not allowed to say what the devices will be.'

I asked the Keyssa VP if we may one day see HDMI and USB cables with magnetic couplers instead of plugs and sockets, and was told it's something the company envisions. He also played down any fears of it being a costly tech: 'We have done a lot of work to make it easy to manufacture. So it will be very inexpensive; a dollar or two on our side, at component level.'

And lastly, could Kiss replace HDMI?

'A connector never goes away, or it goes away very slowly,' says Venuti. 'It will be a slow, gradual descent. I think HDMI's biggest threat is eventually OTT. Many large companies, the Intels and Qualcomms of this world, are talking about a wire-free world. Our technology goes hand to hand with wireless power. We see them on the same ascent. Once you get rid of the need for wires for data transfer and power, devices just don't need wires any more.'

'Although the consumer is very happy with one wire – with HDMI – we all know they much prefer zero wires.' He's probably right ■



Kiss technology, designed for rapid wire-free transfer of uncompressed files, could streamline the use of mobile tech within a home cinema





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HUNGRY FOR ATMOS?

Considering a Dolby Atmos upgrade? **Steve May** examines the audio highs and lows of the format's first wave of Blu-rays

IT'S NOW ROUGHLY a year since the first Atmos disc (*Transformers: Age of Extinction*) landed in stores, and while early adopters will have snapped up every title, others will have waited to see if the format has wings. With that in mind, we've run the

rule over ten Blu-rays that carry an Atmos soundtrack – some more impressively than others. And in our Playback section (starting on p95), you can check out new arrivals including *San Andreas* and *Mad Max: Fury Road*. Enjoy!

THE DIVERGENT SERIES: INSURGENT

The Divergent Series may be *The Hunger Games* on a diet, but there's plenty to snack on from an AV point of view. Production sound mixer Peter J. Devlin is a multiple Oscar nominee who also worked on *Transformers: Age of Extinction* (see page 31) so you know you're in good company.

Insurgent is the second episode in this futuristic 'Young Adult' fantasy, and once again features a lot of fresh-faced people scowling. It's like E4, only on a bigger budget.

And as an Atmos-toting Blu-ray, *Insurgent* comes recommended. To a point anyway – while crystal-clear and endowed with LFE impact, it's not the most consistently

adventurous soundmix you'll ever hear. As well as the virtual reality simulations later on, Chapter 4 is a standout moment, featuring heroes Tris, Four and Caleb making an urgent escape across woodland; score and gunfire propel the action, until they find momentary salvation on a high-speed train – before discovering the carriage they're on contains the Factionless – and the train fight, one of the tightest action scenes in the movie, ensues. The sound design and Atmos execution here is solid and unrelenting, the height layer emphasising the speeding train while the scrappage continues across the front soundstage.



The Insurgent crew realised they'd been spotted by *The Hunger Games* gang



GRAVITY: DIAMOND LUXE ED.

The poster boy of the Atmos revolution, *Gravity* scooped multiple Oscars for its sound design and editing. The everyday tale of astronauts struggling to stay alive after an in-space collision, the storytelling is stripped back, but there's nothing ordinary about its AV presentation; it boasts one of the most remarkable audio mixes in modern cinema, courtesy of sound designer and editor Glenn Freemantle.

To emphasise the isolation of astronauts Sandra Bullock and George Clooney, it's the soundscape – and more often the lack of it – which makes you believe in their plight. When the movie begins, and the opening beats are sucked into the void of space, you hear only faint comms chatter. This builds slowly in volume, ping-ponging across the front soundstage. That first dialogue emanates in the height layer, before drifting to the centre. But when the satellite debris tears through the Explorer shuttle, the soundmix is considerably more aggressive. Here the height channel orbits the rest of the soundstage, creating a maelstrom of electronic score, claustrophobic breathing and radio whistles.

Later, as Bullock glides weightlessly through the Soyuz orbiter (Chapter 5), the Atmos elements almost appear to be pressurising the room: water globules gloop past, the sound of radio static floats above your head. It's all fabulously immersive.

Interestingly, the Atmos mix was created after the standard surround track, but once heard it's difficult to imagine listening to it any other way. Simply excellent.



UNBROKEN

This WW2 POW drama offers copious scope for atmospheric audio. Based on the extraordinary life of US Olympic athlete Louis Zamperini, it features air battles, roiling life-raft drama and incarceration in Japan, all very different soundscapes that welcome inventive sound design. It says much that the soundmix contributes considerably to the brutal realism of the yarn.

There are decent demo sequences aplenty. When Zamperini's plane crashes in the Pacific (Chapter 6), a wall of water is sent crashing over your head, followed by plumes of bubbles. Left to drift helplessly in a small lifeboat, the survivors of the crash bake in the relentless sun – until a rare rain shower brings relief; this pitter patter is a staple of Atmos design and it works a treat here. Zamperini's eventual jungle incarceration (Chapter 11) comes complete with incessant insect noise, so much so that you'll think your viewing room has a serious bug infestation.

The best sequence is the opening bombing run over Japan (Chapter 1). From the freight-like rattles of the attacking B-24 Liberator to the strafing runs of defending Zeros, the soundfield bristles with fast-moving detail. When flak begins to detonate around the approaching bomber, the intensity of the overhead explosions is genuinely startling.



THE HUNGER GAMES: MOCKINGJAY PART I

This third instalment of this teen dystopia doesn't deliver as many thrills as preceding episodes, but remains a satisfying home theatre experience. After the dramatic conclusion of *Catching Fire*, heroine Katniss Everdeen (Jennifer Lawrence) has hunkered down into the caverns of District 13, where she stays for most of the movie.

That said, the sound design is bright throughout. Rather than crank the volume in an attempt to bury your theatre in rubble, it uses its sound staging to draw you into the drama. So, when Katniss visits the neighbouring devastated district (Chapter 2), the movie's main theme is played out full-range across the height channels, the score rising emotively as she realises the scale of the destruction. When the helijet drops the rebel film crew off at the field hospital, the upper atmosphere is buffeted by its engines before it lifts off, flying top to rear. The mood changes dramatically when air raid sirens ring out. Soon the soundstage is awash with rocket fire and destruction. It's powerful, exciting stuff that really shows just how spine-tingling a good Atmos mix can sound.

Plodding movie, exciting audio.

THE GUNMAN

While big VFX movies provide a natural home for 3D audio, potboiler actioners like Sean Penn's *The Gunman* take less obvious advantage. Given that director Pierre Morel helmed *Taken*, you might hope for similar visceral thrills. Unfortunately this shooter lands half-cocked. Penn plays Jim Terrier, ex-Special Forces assassin, who becomes embroiled in an incomprehensibly dull conspiracy that apparently requires he spend much of the movie bare-chested.

Sadly, the soundmix is less brazen. That's not to say it doesn't deliver on its genre promises, only that it never really opens up. The gunplay is suitably dramatic, with punishing reports that hit loud and deep, but you'll not find much going on above your head. You could quite easily watch this in standard 5.1 and not feel that you're missing out.

It does have its moments, though. When Penn pays a visit to a Spanish villa (Chapter 7), only to be embroiled in a shoot-out, the height channel is used to foreshadow the violence, parping up to raise tension, as well as adding thumpy resonance to the gunplay. Marco Beltrami's score also gets to bloom occasionally, perhaps acting as a buoyancy aid for the leaden dialogue. Ultimately though, *The Gunman* is one for Penn completists, rather than Atmos fans.



THE EXPENDABLES 3



If you're looking for an object (audio) lesson in sheer heart attack Atmos, then this instalment of Stallone's geri-action franchise is the disc you've been waiting for. Sound designer Ryan Collins clearly looked at the opportunities offered by a height channel (theatrically the film exists in both Atmos and Auro-3D iterations), and quite rightly decided the best thing he could do with it was fill it with heavy weapons fire, explosions and general destruction.

Chapter 3 features a bombastic assault on a harbour warehouse in Mogadishu. When the team decide stealth is far less fun than *Strictly Come Carnage*, the front soundstage lights up with festive artillery.

Explosive effects pan back, forth, and arc across the ceiling. Bullets whistle and ricochet around the room; there's seamless imaging, both horizontally and vertically.

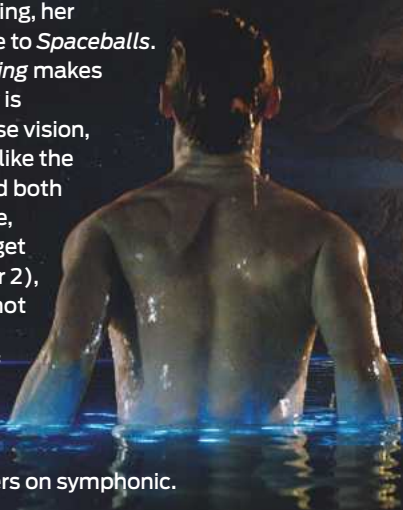
The mix is wonderfully dynamic and exciting. When Terry Crews declares it's 'time to mow the lawn', while brandishing a gun the size of a mobility scooter, you instinctively want to dive for cover. From an AV system-stretching point of view this is a ruthless military exercise.



JUPITER ASCENDING

This panto sci-fi from the Wachowski siblings is nutcracker crazy, with a story centred around Mila Kunis' unlikely domestic who transpires to be the reincarnated heir of intergalactic nobility. Aiming for *Star Wars*-style universe building, her unfolding adventure probably owes more to *Spaceballs*.

Still, while very little of *Jupiter Ascending* makes sense, the sheer audio-visual buffoonery is something to relish. As befits its grandiose vision, the movie treats the Atmos space much like the front L/C/R with full-range music pushed both forward and skyward. This creates a huge, expansive envelope of sound. When we get our first sniff of anti-grav action (Chapter 2), the Atmos channels carry the score but not the gunfire. And when Channing Tatum rescues her royal Kunis from the grasp of the creepy alien Keepers (Chapter 3), it's the Atmos channels which once again send the score skyward. This Phil Spectre approach to sound design borders on symphonic.



TRANSFORMERS: AGE OF EXTINCTION

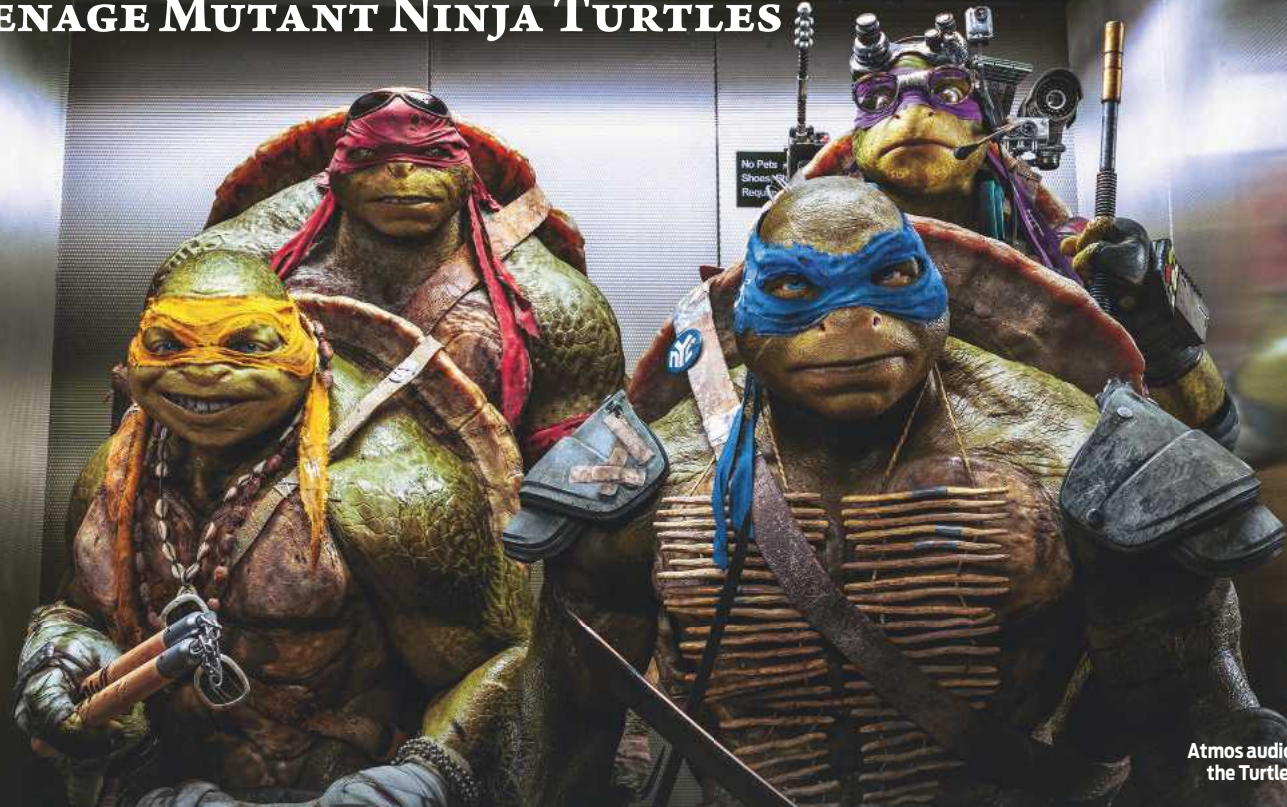
Whatever your view of Michael Bay's *Transformers* movies, there's no denying that the sound experience of the series is breathtaking. This is largely due to the work of sound designer/supervising sound editor Erik Aadahl, who also created the *Atmos Unfold* trailer. Aadahl really has some fun here. The opening space scene utilizes electro magnetic recordings made *en route* to Jupiter by the Galileo space probe, and somewhere in the mix are elements from the original cartoon show.

Notable as the first Dolby Atmos BD release, this is a no-holds-barred sonic assault. This movie doesn't just push the 3D audio envelope, it employs a squad of clanking postmen to hand-deliver it through your roof. The annihilation of the dinosaurs (Chapter 1) is played out across both the L/C/R and Atmos channels with equal vigour. Subtle it's not.

Yet elsewhere there is some restraint. When Galvatron comes online and goes rogue (Chapter 11), height speakers are used sparingly for transformational effects and overhead weapons fire. This isn't immediately apparent in the general melee but it makes the sense of scale even more pronounced. Overhead pans also carry full-bodied weight.



TEENAGE MUTANT NINJA TURTLES



Atmos audio gives the Turtles a lift

Only the wilfully reckless will rush to add these pizza-scoffing, wisecracking amphibians to their disc collection, Dolby Atmos or not. Cursed with toe-curlingly lewd dialogue, *TMNT* is a challenging watch at the best of times, but director Jonathan Liebesman (*Wrath of the Titans*) at least delivers some diverting action set-pieces, and the CGI turtles are technically impressive – well, they look better than the costumes featured in the previous movies.

When it comes to audio, there's plenty of front to rear action (Raphael and Donatello would doubtless have a field day with that) yet despite its blockbuster blather, object placement is

surprisingly understated and naturalistic. When April O'Neil (Megan Fox) is taken hostage by the dastardly Foot Clan (Chapter 6), the Turtles announce their presence from your rafters, but beyond some shattering glass the resulting action sequence plays out conventionally in the horizontal plane. April is eventually freed and sets off to track her half-shell rescuers, climbing a fire escape to follow them onto a roof. The euphoric Turtle chatter is carried only in the height channel, increasing in volume and panning down as April approaches the top of the ladder. This adds a real sense of upwards momentum.

Workmanlike, rather than awesome, dude.



AMERICAN SNIPER

Hilarious fake baby *faux pas* aside, Clint Eastwood's *American Sniper* is a taut realistic drama that will leave your viewing room peppered with collateral damage. Sound design and AV execution is outstanding. The movie enjoyed Oscar recognition for its audio, winning Best Achievement in Sound Editing for Alan Robert Murray and Bub Asman, and a nomination in the Best Achievement in Sound Mixing category. Weapons discharge with dynamic force around the entire soundstage, making it almost impossible to relax, while musical beats are almost staccato in nature. The resulting onslaught will leave you exhausted.

From early sequences on the rifle range, to The Butcher ambush (Chapter 7), the AV presentation ratchets up the tension. However, it's difficult to attribute this to any overt Atmos-pherics. Indeed, there's often nothing going on in the height channel at all. So, yes, *American Sniper* is an extraordinary example of home cinema audio, but the Atmos presentation wouldn't necessarily win in a shoot-out with a 5.1 alternative ■



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Revamped theatre is a winner

This retro-fit prize-grabbing cinema room showcases 4K projection, in-wall speakers and plenty of style. **Mark Craven** gets jealous

KIT CHECKLIST

SCREEN EXCELLENCE: 130in fixed screen with 4K acoustically-transparent fabric and bespoke side-masking

SONY: VPL-VW500ES 4K projector with custom ventilation

ONKYO: TX-NR828 AV receiver

KLIPSCH: 3 x THX KL7800 in-wall speakers; 2 x THX KS7800 in-wall speakers

ARTISON: 2 x 12in in-wall subwoofers

CONTROL 4: HC800 system controller; SR250 remote handset; keypad dimmers

LG: Blu-ray player

SKY: Sky+HD



**MANGA
MADNESS**
Groundbreaking
anime *Knights of
Sidonia* arrives
on BD, p100

WITH ITS BLEND of 4K visuals, smart aesthetics and clever system control, it's easy to see why this dedicated home theatre was declared Best Home Cinema Under £40,000 in this Summer's CEDIA Awards. Completed by Midlands-based outfit The Big Picture, it's a room that both the owner and the installer are proud of.

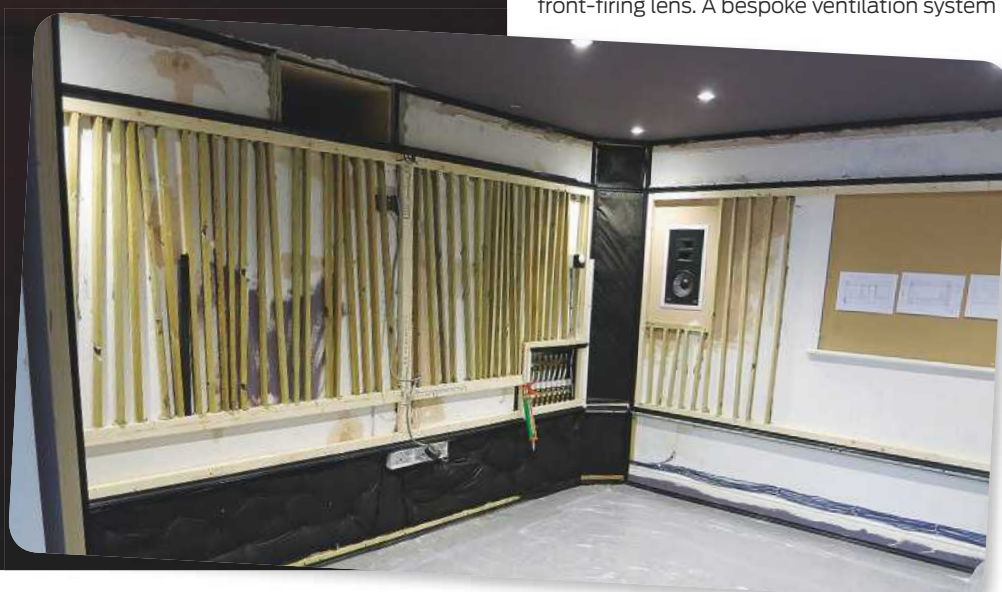
The project came about through less than ideal circumstances, though. The owner previously had a cinema setup in the room, but, explains installer Ciaran Wilkins, it had been ripped out due to smoke damage from a 'very unfortunate fire in the lounge.' Seeing his film-watching dreams going up in smoke led the owner to ask The Big Picture to build an entirely new home theatre.

Stairway to Ultra Hi-Def heaven

The fixed budget allowed for 4K projection and a 4K-compatible projection screen. And, as the owner was open to ideas, a reconfiguration of the layout of the room from its previous orientation, to create more space and an improved AV performance, with the projector hidden in an under-stairs cupboard. The model in question is Sony's 4K VPL-VW500ES, which, we're told, required little calibration to achieve a brightness of over 30 foot lamberts off the Screen Excellence screen.

Room prep included blocking up existing windows to reduce sound leakage and replacing the doors leading out to the hallway, which had before been glazed, with solid ones. Work on the walls was undertaken to accommodate the Klipsch in-wall speakers, plus twin in-wall subwoofers from US custom install marque Artison, that were chosen to deliver the cinema's sonics in conjunction with an Onkyo receiver.

Thought was taken with the installation of the Sony projector. While housed out of the room to reduce noise and streamline styling, fan noise was still a concern – the VPL-VW500ES intakes air from around its front-firing lens. A bespoke ventilation system >





The room is finished with stretch-fabric wall covering

(including vent cowlings married to independent fans to prevent warm air being recirculated into the unit) works to keep the projector's onboard fans running at a minimum, and is triggered to kick in when the PJ is fired up.

Another neat feature of the install, aided by the Sony projector, is constant height projection. Wilkins reveals that a side-masking acoustically-transparent 4K screen, to achieve the biggest possible 16:9 and CinemaScope visuals, would have eaten up more than half of the owner's budget. The Big Picture therefore crafted a system using an automated blind with acoustically transparent black slats hidden by a valance. Bringing this into action requires a simple button press of the Control 4 SR250 handset; it also triggers the re-zoom and image shift of the Sony projector.

The lighting scheme includes dimmable RGB LED strip-lights and LED spots. Sources include Blu-ray and Sky+HD. Acoustic treatment of the room runs to absorbers and diffusers (at the first and second reflections respectively) and bass traps.

A final flourish is the stretch-fabric wall covering, which gives the room its sleek appeal. Designing this was tricky, as it had to blend smoothly with the screen, door, lighting and acoustic treatments. 'It was like a very complicated 3D jigsaw puzzle, but with no plan or photo to follow,' admits Wilkins. 'So many aspects are inextricably linked – change one small thing and the knock-on effect is huge.' The end result looks worth it though... ■



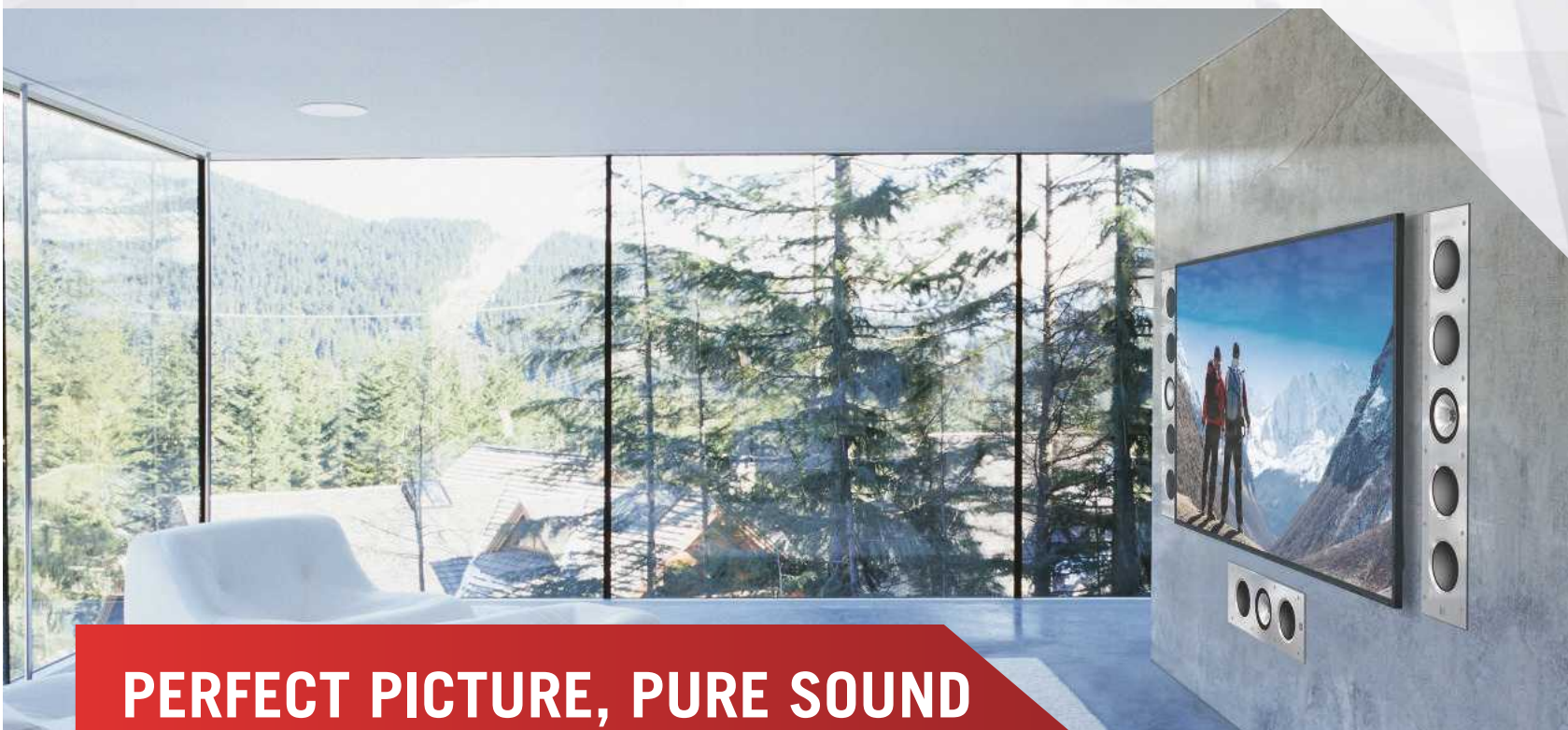
Klipsch in-wall speakers, with 8in woofers and 1in horn-loaded tweeters, are used across the front soundstage

The slide-out kit rack (left) lurks in an adjacent room, as does the Sony 4K projector





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DYNAUDIO

REVIEWS

→ **HARDWARE HIGHLIGHTS** PANASONIC 50in Ultra HD LED flagship TANNOY Affordable 5.1 sub/sat system CLASSÉ Processor/power amp duo WETEK Android media player ACER Single-chip DLP PJ KEF Dolby Atmos-enabled upfiring speakers YAMAHA 5.1 AVR with Aventure design HUMAX 500GB Freesat Freetime PVR **ROUNDUP** Five affordable 4K flatscreens do battle **AND MORE**

LED's watch a movie



Optoma returns to the world of LED projectors with its £3,500 HD91+, and with impressive results. See page 48

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

40 PANASONIC TX-50CX802 → £1,500 approx

**ROAD
TRIP**

*Mad Max: Fury
Road* hits BD with
a Dolby Atmos
mix, see p98





AV INFO

PRODUCT: LED-lit LCD TV with 4K panel**POSITIONING:** Panasonic's current range-topping UHD offering**PEERS:** Sony KD-55X9305C; LG 55UF850V

Panasonic has put to bed the ghost of plasma with this 4K TV champion, says **Steve May**

Plasma exorcist

IT MAY HAVE taken time for Panasonic to refocus its engineering team from plasma to LCD, but with the CX802 (also known as the CX800 in some territories) the Japanese giant finally seems to have cracked the transition.

Not only is this the most accomplished LED screen it's ever made, it's one of the finest all-round 4K TVs available right now.

The CX802 comes in four sizes. The iteration reviewed here is the tantalisingly affordable 50in TX-50CX802, but it's also available in 40in, 55in and 65in versions. Panasonic deserves applause for this strategy – some other brands make their top-tier tech off limits at sizes below 55in.

Build quality seems excellent. Yes, the set is thicker than many of its rivals, but that does it a disservice given that it's only 46mm deep. At 18kg it's reassuringly heavy, too.

The panel is framed by a metallic bezel with chamfered edge. The brand's awkward weighted pedestal stands have been retired in favour of one that half-moons behind the screen, leaving only two chromed feet visible. The appearance is very chic. The speaker system fires downward, and is largely invisible.

Three's company

When it comes to connectivity, the TX-50CX802 offers just three HDMI inputs, but significantly all support HDCP 2.2, so you should be able to hook up any next-gen content source. There's also a trio of USBs; Scart and component AV for legacy hardware; Ethernet; a digital optical audio output; and SD card slot. Wi-Fi is integrated and dual-band, giving you the choice of 2.4GHz and 5GHz bands. As with nearly all top-flight sets, buyers

The standard zapper carries a large Netflix key for VOD fans



get two remote controls, one a traditional IR zapper, the other a Bluetooth trackpad.

The CX802 carries Panasonic's revamped Smart TV user experience, in the shape of the Firefox OS – and it's a goodie. Setup takes just a few minutes (in stark contrast to the Android OS adopted by Sony and Philips). The set prioritises satellite tuning – it has a Freesat tuner – above Freeview, which may be initially confusing for some viewers, but once past this hiccup, most will be tuned in and ready to go.

Apparently Panasonic took its concept for the Firefox OS to developer Mozilla, rather than the other way around – and the designers obviously had an alternative to LG's WebOS in mind. The new Firefox OS offers a similar stripped-back user interface. The system launches with just a trio of buttons – Home, Apps and Devices – but other innovations are hidden in plain sight. An Info Frame offers viewing recommendations, notifications, weather and web clips, accessible by the direction key. Just press for the Info Bar, and it slides into view.

Content apps are accessed via the Home key. In keeping with the circular motif, there are buttons for Netflix, Amazon Prime and YouTube, as well as a placeholder for Freeview Play, the new connected version of the ubiquitous TV platform. This features a roll-back EPG and integrated catch-up from all four main broadcasters, but wasn't live on our review sample – it will surface as a firmware upgrade as and when. Looking to use a dish rather than an aerial? The Freesat implementation here also supports Freetime, which is much the same as Freeview Play.

Both Netflix and Amazon apps are 4K-capable. While the former has become an increasingly common feature on HEVC-enabled TVs, Amazon remains a relative rarity. The surprise is just how much 4K UHD material is available, both as part of the Amazon Prime subscription pack (*The Man in the High Tower*, *Bosch* and *Mozart in the Jungle* to name just three shows) and pay-per-view offerings. 4K movies to 'buy' include *Ghostbusters 2*, *Men in Black 2 & 3*, *Fury*, *Salt*, *After Earth*, *Godzilla*, *The Amazing Spider-Man*, *Total Recall* and several more. It's an impressive early collection.

The apps portal also offers Facebook and Twitter clients (just say no), miscellaneous movie and music streaming apps, and a bucket-load of casual games. A Quad Core processor ensures that navigating all this is nice and sprightly.

Pole position performance

So Panasonic's TX-50CX802 is out in front when it comes to Smart connectivity. The good news is that it doesn't fall behind when it comes to image quality either.

At the heart of this flagship flatscreen (and it is flat – there's no curve here) is Panasonic's 4K Studio Master Processing,

Design highlights are the metallic bezel and curved, open pedestal



effectively the brand's most advanced UHD picture engine yet. It's a glorious confluence of image manipulation and wide colour gamut technologies. I was literally taken aback at just how great the CX802 looks. 2160p pictures are hugely detailed and dynamic, while the screen's black level performance (it uses a VA-type panel) is class-leading.

Backlight uniformity – often a failing of edge-lit screens – is here made a strength. From *The Dark Knight* (Blu-ray) to *Daredevil* (Netflix) you'll find the same elements of nuanced subtlety that made Panasonic's plasma screens so memorable, only bolstered with astonishing pixel density.

The screen does a fabulous job upscaling Full HD, particularly Blu-ray, to 4K UHD. Given that it'll obviously be some time before we

have a healthy selection of native 4K discs to gawp at, this will do nicely. The opening reel of *I Robot* (Blu-ray) takes a street-level look at a wonderful futuristic cityscape. Remapped to 2160p, this sequence boasts an almost photographic realism. (If you don't want the set to upscale, you can display 1080p material with each pixel multiplied to four).

Personally, I think the TX-50CX802 looks its best on the Normal preset. Panasonic puts great store in its cinematic presets, calibrating them to ape the monitors used during the mastering process, as well as paying THX to do much the same, but I think the results do this 'Super Bright Wide Colour Phosphor' panel scant justice. The Cinema mode dulls and colour-casts yellow, while THX knocks things back even further – it's designed to be

watched in a room with low ambient light; THX Bright Room lightens the mood, but also deflates contrast.

Controversial it might be, but I'd argue that choosing any of the provided movie presets effectively makes the screen look like a display from five years ago. If that's the look you want, you might be better off buying your next TV on eBay.

'The TX-50CX802 is Panasonic's best LED display yet, and it's ready for tomorrow's TV revolution'

By contrast, the Normal preset is rich, bright and contrasty, with strong vibrant colour. It's good for most content, with the exception that it overscans. Best then to replicate it using the Custom mode, where you can correct the overscan.

Sharpness shooter

The overall balance is good from the box, but there are simple tweaks which I feel improve things even more. I'd recommend nudging the brightness up +1. I also prefer the Cool 1, slightly blue white balance, over Normal, but there's not a lot in it. Sharpness should be reduced from the default of 50 to around 10 – Will Smith's black beanie and leather duds have wonderful tonality as a result. A dark, gritty show like *Daredevil*, in UHD on this Panasonic, looks remarkable – certainly comparable to plasma in terms of cinematic appeal, yet with more raw detail.

If you want, you can dig even deeper into the menus and have a fiddle. The set's gamma default is 2.2, although you can edge up and down from there – there's considerable latitude. 2.4 gives a more contrasty look, although you lose some shadow detail. This

suits some content, but not all. By and large, the default positions are the best, which makes sense.

What doesn't work quite so well is the dynamic backlight control. In very dark sequences with bright highlights, such as Uma Thurman's live burial in *Kill Bill: Vol 2* (Blu-ray), light can halo in a really unflattering way. Hopefully Panasonic will refine backlight control in future models. But this is a fairly extreme caveat.

And as is always the case with Panasonic TVs, some care needs to be taken with the various frame interpolation modes on offer. The greatest motion clarity can be found with IFC (Intelligent Frame Creation) ramped up, but artefacts become visible on both Mid and Max settings. For movies, the minimum setting proves most effective. It's surprising that Panasonic doesn't offer a user-adjustable menu to manage blur and judder, like its rivals.

The TX-50CX802 is also theoretically ready for HDR content, although with none provided this is difficult to assess. At least the provision is there. Peak brightness is suggested to hit around 500 Nits. It is also Active 3D capable, and performs well in this regard. The *Tangled* (Blu-ray) menu reveals some crosstalk double imaging, but in play the movie presentation is engrossing. I doubt you will hear any kids complaining.

Audio, often an underserved element on Panasonic's super-thin screens, is here treated with welcome respect; there's enough volume and mid-range body to hold interest during casual viewing from the 40W speaker array. While I would still expect enthusiasts to cocoon the panel in a sound system of some merit, the set at least doesn't suffer in isolation.

Fabulous flatscreen

Overall, I'd rank the TX-50CX802 as a fabulous flatscreen. With both Netflix and Amazon 4K services in tow, HDR compatibility ready to be unlocked with a firmware upgrade and a sharp, modern Smart TV interface, this is a model ready for tomorrow's TV revolution. The fact that it delivers the best video performance I've seen to date from a Panasonic LED-lit LCD TV almost seems almost fortuitous. There are niggles, but these are minor in the scheme of things.

Sony's 2015 4K fleet, particularly the 55in X9305C, represent its nearest competition, and compete well on the visual front. But they're hobbled by the clanking monster that is the Android TV OS. LG offers an equally compelling Smart package with its UF850 line, but can't quite match image fidelity, while Samsung's range-topping 8 and 9 series are all curved and more expensive – even the 48in JS8500 model.

The TX-50CX802 is therefore a 4K television with instant appeal. Audition one ■



ON THE MENU



→ The icon-driven FireFox OS is crisp and intuitive, making light work of finding content apps and connected devices. Digging deeper into the setup menus isn't laborious either

SPECIFICATIONS

3D: Yes. Active
4K: Yes. 3,840 x 2,160 resolution
TUNER: 2 x Freeview HD; 2 x Freesat HD
CONNECTIONS: 3 x HDMI inputs; 3 x USB; Ethernet; SD card reader; Scart; component/composite AV; digital audio output; CI slot
SOUND: 40W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): 'Supreme Contrast'
DIMENSIONS (OFF STAND): 1,121(w) x 652(h) x 46(d)mm
WEIGHT (OFF STAND): 18kg
FEATURES: Built-in dual-band Wi-Fi; USB multimedia playback; DLNA multimedia playback; Local Dimming Pro; 4K Studio Master Pro; 1,600Hz BMR; Super Bright Wide Colour Phosphor panel; Bluetooth remote control; Freeview Play upgradeable; HDR upgradeable; Freesat freetime; FireFox-powered Smart interface including 4K Netflix and Amazon VOD; THX and ISF certified

HCC VERDICT



Panasonic TX-50CX802

→ £1,500 approx → www.panasonic.co.uk
 → Tel: 0844 844 3899

HIGHS: Vibrant, dynamic 4K images; superb FireFox TV OS; Freeview Play compatible; HDR upgradeable

LOWS: Motion handling could be improved; Local Dimming Pro lacks absolute finesse

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

Tight on space but big on ambition? Then Tannoy's relaunched HTS sub/sat system will serve you well, says **Danny Phillips**

Smallscale six-pack with sonic strengths



Each Tannoy HTS 101XP satellite uses a single coaxial driver arrangement

AV INFO

PRODUCT:
Compact 5.1
speaker array

POSITIONING:
Affordable sub/sat
package replacing
the HTS 101

PEERS:
Q Acoustics 3000;
Mission M3

SHOPPING FOR HOME cinema speakers can be a complicated business, particularly when you're trying to balance your desire for powerful sound with the spatial limitations of your living room. Soundbars appeal but stop short of true surround sound, while floorstanders can sound imperious but can encroach on your space like an overweight air passenger.

Don't fret though, because compact speaker packages like Tannoy's HTS 101XP are here to simplify your decision. They're the perfect middle ground, making a big noise while keeping clutter to a minimum. You'll still need a separate amp and cables, but their dinky speakers will slip almost unnoticed into the room.

This particular bundle of 5.1 fun is a souped-up version of Tannoy's HTS 101 system that launched in 2011. This new incarnation boasts upgraded drivers, a glitzier design and a tweaked subwoofer that delivers eXtra Power (hence the 'XP' suffix).

The system arrives in a single box, and sells for £700. Not bargain-bin, but not pricey either.

In the box are five identical 18.5cm-high satellites and a small, powered subwoofer. The satellites are identical for cosmetic and acoustic reasons, ensuring the tonal uniformity required for a coherent movie experience.

Visually the HTS 101XP is a step up from the original HTS 101 – the gloss-black end caps are rounded at the edges, giving them a softer vibe than the original system's right-angled boxes, while the rest of the cabinet sports neat brush-effect panels and removable black cloth grilles.

Underneath the surface style, the weighty cabinets are crafted from high-density particle board as opposed to the moulded plastic used by some compact speakers. On the back you'll find solid binding posts to clamp your cables.

The satellites can be placed vertically or horizontally, allowing you to use any of them as the centre speaker – neat-freaks will appreciate that the Tannoy logo can be turned accordingly. Adhesive rubber feet can be stuck to the relevant surface.

This two-way installation is made possible by the speaker's upgraded coaxial driver configuration, with a 0.75in titanium dome tweeter mounted in front of a 4in elliptical midrange driver. This creates a single point source that sounds the same whether horizontal or vertical, as well as improving phase coherence and driver integration.

The TS2.8 subwoofer is a surprisingly good-looking affair, mimicking the satellites with its curved edges, brushed black finish and removable side grilles. It's also only 27.5cm wide, which is handy when you're trying to find a home for it.

Build quality seems great. The TS2.8 is hewn from heavyweight fibreboard and lifted from the floor by four sturdy conical spikes. The side-firing 8in long-throw driver is mirrored on the opposite side by a mass-loaded 8in passive driver to give bass extra muscle. The digital amplifier musters 200W, double the power of the previous system's sub.

Controls on the back include frequency and volume dials, stereo phono inputs, LFE and speaker-level inputs, plus phase and auto power switches.

Thumpin' smack crash

In action, the extra welly afforded by this new subwoofer takes the system's muscularity up a notch, while the tweaked coaxial drivers deliver mids and highs with outstanding drive and precision. It's a thumping good listen.

The aim of any compact speaker system is to deliver a bigger sound than its modest size would suggest, and when playing *Exodus: Gods and Kings* on Blu-ray the HTS 101XP does just that. Ridley Scott's biblical bloater is big on scale and spectacle and the Tannoy does it justice with a beefy, room-filling rendition of the DTS-HD Master Audio mix. ➤





The subwoofer's power plant now hits 200W

As Moses leads his people through the Red Sea with Ramses' army in pursuit, a deep, penetrating rumble from the subwoofer makes the waves sound as enormous and threatening as they look on screen.

But even in the face of this onslaught, bass isn't boomy or overwhelming, provided you're judicious with the subwoofer's volume dial. Tight integration with the satellites ensures a solid, cohesive soundstage, while transients

'There's no shortage of excitement here – the HTS 101XP offers an expressive treble and clear detail handling'

are delivered with a taut thud and there's subtle depth to music and dialogue. It's by no means the most powerful sub I've heard, but when low frequencies are as tight and punchy as this I really don't care.

Divine dialogue

Many 5.1 systems throw an extra midrange driver into the centre speaker to give vocals a leg up but that's not the case here. No matter – the direct, focused coaxial drivers are forceful enough to push dialogue through even the most furious acts of God.

Even more impressive than the Tannoy's power is its expressive treble reproduction. Every scene is alive with fine detail, like the crunch of footsteps on the dusty desert ground or crackling fire inside opulent Egyptian palaces. And When God bothers the Egyptians with a plague of locusts, they swarm across the stage from back to front with absolutely no change in tone. The Tannoy renders the buzzing bugs with such horribly

life-like clarity that I almost reached for a can of Raid.

Keeping with the insect theme, I switched to schlocky '90s thriller *Mimic* and the Tannoy pack continued to raise a cheer. It hits all the sudden jumpy bits hard, demonstrating an impressive handling of dynamic shifts. I defy you to remain seated when the bug stalks Mira Sorvino in her apartment...

There's no shortage of excitement either. The HTS 101XP's lively character has enough attack to bring out leading edges without making them sound brash.

The del Toro movie offers more evidence of the system's clear detail handling. The creepy

clicking and chattering of the Mimics is unsettlingly lucid – particularly when they're swirling around your noggin' in the spacious soundstage – plus scenes beneath the subway station are teeming with half-heard noises from the shadows, which adds bucketloads of suspense.

That said, some might accuse the Tannoy of being too clinical and treble-heavy, a far cry from the smooth, natural approach of the identically-priced Q Acoustics 3000 5.1 package. But if you like an open and precise sound then it's just the ticket. What's more, Q Acoustics' speakers are about twice the size of Tannoy's, which makes a major difference to installation possibilities.

The HTS 101XP turns in a pleasing music performance, thanks largely to the effervescent detail. *Modaji* by Dave Grusin from the CD *One of a Kind* is a jazzy delight – there's a sharp edge to the snares and live bass slaps, while airy shakers and hi-hats drift above the composed front stage.

Grusin's keyboards sound warm and chunky, while the subwoofer nimbly underpins the drums with solid bass. It's a lovely performance – this array is more than good enough for casual listening – but because the satellites don't reach that low (Tannoy suggests a 100Hz roll-off) you'll need the sub in tow to dig out the deepest bass notes. Again, not a problem with some larger 5.1 arrays in this market.

Chic, compact contenders

The Tannoy HTS 101XP isn't the best-sounding package you can buy for £700, then, but it's certainly up there. Its chic, compact design, solid build and lively, detailed sound – backed by seamlessly integrated bass from the beefed-up subwoofer – make it a great-value solution for those who want true 5.1 audio with minimal clutter. Recommended ■

SPECIFICATIONS

HTS 101XP SATELLITES

DRIVE UNITS: 4in elliptical paper cone and 0.75in titanium WideBand dome tweeter in coaxial configuration with neodymium magnet system

ENCLOSURE: Sealed

FREQUENCY RESPONSE: 100Hz-43kHz

SENSITIVITY: 89dB

POWER HANDLING: 25W-100W

DIMENSIONS: 100(w) x 185(h) x 109(d)mm

WEIGHT: 1.4kg

TS2.8 (SUBWOOFER)

DRIVE UNITS: 8in long-throw paper cone woofer and mass-loaded 8in ABR driver

ENCLOSURE: Sealed

FREQUENCY RESPONSE: 50Hz-200Hz

ON BOARD POWER: 200W

REMOTE CONTROL: No

DIMENSIONS: 275(w) x 420(h) x 370(d)mm

WEIGHT: 10kg

CONNECTIONS: LFE input; phono line input; speaker-level inputs

HCC VERDICT



Tannoy HTS 101XP

→ £700 approx → www.tannoy.com

→ Tel: 01236 420199

HIGHS: Very detailed sound; solid integration and tonal uniformity; powerful, well-balanced bass; great build and stylish, compact design

LOWS: Rival systems offer smoother, more natural treble; subwoofer favours tightness over outright extension

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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Optoma has rejuvenated its LED-based HD91 projector. **John Archer** wonders if it can light up his life

Hours of home entertainment

THE LAUNCH OF Optoma's original HD91 projector in 2014 was a big deal. After all, it marked the first time ultra long-life DLP LED technology (Optoma reckons the HD91+'s LED light source will last 20,000 hours) had been applied to a serious home cinema projector that didn't cost as much as a new car.

For such a ground-breaking model it also gave a pretty good account of itself performance-wise, only being let down by a lack of contrast and brightness versus similarly priced 'standard' lamp projectors.

Happily Optoma has decided to try and fix these issues with the cunningly named HD91+ – a new model that increases brightness by nearly a third to 1,300 Lumens, and delivers a claimed 600,000:1 contrast ratio versus the original HD91's 500,000:1. Unfortunately these increases have been joined by a price bump – the HD91+ is currently £3,500 whereas the original HD91 was nearer £3,000.

Still, at this reasonably serious level of the market, home cinema fans won't mind paying a bit extra if the results are worth it.

The allure of LED

As well as that fabulously long lifespan, the HD91+'s DLP LED light engine promises superior colour stability versus typical single-chip DLP projectors, and a far lower – potentially negligible – rate of picture quality reduction over time versus rival lamp-based beamers. Plus LEDs don't require tedious warm up and warm down times.

Setting up the HD91+ reveals it to be a flexible beast. It's optical zoom runs to a very generous 1.9x, while wheels positioned – bizarrely – on the projector's underside cater for horizontal and vertical image shifting. The onscreen menus, meanwhile, provide in-depth colour and gamma management systems, as well as plenty of control over the HD91+'s dynamic contrast and surprisingly effective PureEngine image processing tools.

A Dynamic Black system has three levels of potency, or you can deactivate it and manually select your own consistent level of light output. The PureEngine system, meanwhile, has colour enhancement, sharpness boosting and motion improvement elements, all of which can be individually tweaked or turned off entirely. Don't opt for the latter option straight away. I found all these adjustments turned out to be quite usable, at least on their minimum settings.

The home for all this impressive PJ tech is a bold-looking enclosure. The HD91+ arrives in an elongated chassis with lots of artful angles and curves – and the large, arced lens-housing raises hopes of plenty of quality for the optical system beneath.

Second-generation success

The HD91+'s picture quality instantly struck me as substantially improved over the original model. Run-throughs of *Oblivion* and the last *Harry Potter...* film immediately looked brighter and more dynamic, thanks to an obvious increase in light output and a noticeably deeper black level response.

These new strengths make the HD91+'s performance look much more in line with that of other projectors in its price range. You no longer feel as if you're paying off some of Optoma's R&D budget with your £3,500; now you just feel like you're paying big bucks for a high level of projector performance.

The HD91+'s core brightness and contrast improvements make it easy to appreciate strengths this PJ shares with its predecessor. Imagery is exquisitely detailed and sharp, >

The backlit remote grants quick access to the PJ's picture tools



AV INFO

PRODUCT:
A DLP projector
using LED lighting

POSITIONING:
At the top of
Optoma's home
cinema range

PEERS:
JVC DLA-X500;
Sony VPL-HW55ES



Optoma's well-featured PJ packs a 1.9x optical zoom and horizontal/vertical lens shift



Rear-mounted connections include twin HDMI inputs

revealing plenty of subtle information. This detailing even extends to dark scenes like Ron and Hermione's post Horcrux-destroying snog, where the HD91+ produces reference-grade levels of shadow detail.

Sharpness doesn't appear at all forced. There's no sense of any contrived edges or fizzing noise, even with *Harry Potter...*'s deliberately grainy look. The grain is still visible, but only in an organic way that never starts to 'take over' the picture, which it can with PJs and TVs that push the sharpness issue.

Further contributing to the HD91+'s sharpness is some excellent motion handling. There's minimal judder or blur to worry about even if you don't use the motion processing system – although as mentioned earlier you can confidently set Optoma's PureMotion system (on its lowest power setting) to sharpen things up a touch.

'Equip yourself with Optoma's 3D transmitter and active spex and you'll savour cinematic immersion'

Colours, for the most part, are improved here. A little calibration is necessary to remove a pinkish tone from dark sequences and a slightly green tone to very bright scenes, but you can soon get pictures enjoying a striking blend of vibrancy and accuracy. It portrays the often quite difficult skin tones of both *Oblivion* and the Hogwarts wrap-up with subtlety; there's no sign of any banding, blocking or Harley Street levels of plasticity.

The HD91+ is no slouch with 3D, either. Equip yourself with Optoma's optional transmitter and active spex and you'll savour cinematic immersion – pictures are detailed, crisp and free of crosstalk. It's not the brightest experience around, but markedly punchier than that of the original

HD91, and clarity and colour accuracy compensate for the lack of luminance. The only weird thing is that I had to invert the 3D Sync setting to get 3D looking right – something I've never had to do with any other brand of 3D product.

While the HD91+ spends much of the time delivering gorgeous visuals, it does have one Achilles' Heel: its dynamic contrast system. Without using any of the three provided Dynamic Black settings, the HD91+'s contrast is only average for a £3,500 projector. Yet if you call the Dynamic Black settings into play, while the black level response increases dramatically, the picture's light levels start to look unstable as the contrast engine reacts too slowly to changes in the image content. Optoma says this slowness is deliberate, as the system waits to see if a brightness shift is really necessary. But all I can say is that this slowness renders the most powerful two Dynamic Black modes essentially unusable for the majority of movies.

Fortunately the lowest-powered Dynamic Black mode saves the day. While it does still cause occasional distractions during the most extreme transitions, these moments are rare enough to make the Dynamic Black 1 setting tolerably stable while giving the images that extra bit of punch they need to go from very good to really outstanding.

More than just a plus

Often when new kit arrives with a '+' sign tagged onto the end of the name of a previous model it means it only improves slightly on what's gone before. With the HD91+, though, Optoma has delivered a major leap forward. I think there's still room for improvement where the dynamic contrast system is concerned, and in an ideal world the HD91+ would be a touch cheaper to leave more pricing water between it and JVC's eShift models. But the combination of a vastly improved picture quality and LED technology's practical advantages make the HD91+ a uniquely appealing contender ■

SPECIFICATIONS

3D: Yes. Active
4K: No. 1,920 x 1,080
CONNECTIONS: 2 x HDMI; D-Sub PC port; component video input; composite video input; 2 x 12V trigger outputs; 3D Sync transmitter port; RS232 control port; USB update port
BRIGHTNESS (CLAIMED): 1,300 Lumens
CONTRAST (CLAIMED): 600,000:1
DIMENSIONS: 345(w) x 161.5(h) x 443(d)mm
WEIGHT: 7kg
FEATURES: DLP LED projection system; 20,000-hour claimed LED life; anamorphic lens support; full colour management; PureEngine video processing; vertical (+/- 60%) and horizontal (+/-10%) image shift; vertical keystone correction; 1.9x optical zoom; 1.5-2.89 throw ratio

HCC VERDICT



Optoma HD91+

→ £3,500 approx → www.optoma.co.uk

→ Tel: 01923 691 865

HIGHS: Gorgeously detailed pictures; no need to replace any lamps; excellent in terms of setup flexibility and calibration

LOWS: Dynamic contrast system is clumsy; it's a touch expensive; awkwardly placed image shift wheels

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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If you can't stretch to a full-fat Classé AV system the Sigma series might be the answer, suggests **Ed Selley**

A Classé combination

BEFORE IT BECAME a member of the Bowers and Wilkins group, Classé made capable, if slightly quirky, products. In recent years, many of these idiosyncrasies have been ironed out and the hardware has become fearsomely capable and sophisticated. The side effect of this is that it's not you would call cheap.

To rectify this, Classé has launched the Sigma models that will act as entry points to the range. To be clear, at £8,500 for the pair on test here, your definition of 'entry' might differ from Classé, but it is a significant saving on its main range of components. At the moment, there are three Sigma offerings: the SSP processor (£4,250); the AMP5 (ditto) – a five-channel power amp, amazingly enough; and the AMP2 (£2,950), a stereo version of the same. The presence of the stereo amp serves to allow for 7.1 speaker configurations, but also gives a nod to the fact that Classé has designed the Sigma range with a view to high performance in stereo as well.

The Sigma SSP is equipped with eight 3D-capable HDMI 1.4a inputs – seven on the rear panel and one on the front – and one output. There are no legacy video connections. A small sampling of additional digital and analogue audio hookups are fitted, including an XLR input and matching output from the front left and right channel connections.

So, with HDMI 1.4a does that mean no 4K passthrough or HDCP 2.2 support? Currently yes, but not forever. Classé confirmed to me that it has an update scheduled, and that anyone who buys a Sigma SSP will be able to step up to HDMI 2.0 and HDCP 2.2 via a video board switch. It has opted for the 'robust and time-tested HDMI 1.4 platform' in the interim.

The SSP is unable to handle any flavour of native height-based surround sound format, although Dolby Pro-Logic IIz processing caters for those with front height speakers. And there is no form of video processing here at all; the SSP simply passes the signal through.

Features that are on board include 192kHz/24-bit capable network audio playback (including FLAC, WMA and ALAC), compatibility with Apple AirPlay (plus iPods/iPhones via the front USB) and DSP modes to play with.

The matching Sigma AMP5 is a Class D design, using the same switch mode power supply found in more expensive Classé amps. The brand claims 200W is available into 8 ohms with all channels driven. Unlike some other members of the Classé family it can't double down into 4 ohms into more than two channels. This is hardly the end of the world, and thanks to the use of Class D, the AMP5 is the same size as the SSP and has no ventilation at all, relying on the chassis itself to act as a heatsink. In use it runs without ever becoming very hot.

Squaring up for your kit rack

The Sigmas do without the curved front panel of more expensive Classé models but I rather like their square-cut looks. Everything here is clean and modern. Nice touches, such as the flush-mounted volume control and clever detachable rack mounts, help this Sigma duo feel worth the asking price. Build is exemplary – these seem as if they're made to last.

So far so good, then, but the Sigma SSP in particular has some operational quirks that may or may not prove to be annoying in use, depending on your patience. Setup and configuration is largely driven by the main screen, which is comprehensive but not especially intuitive. A great deal of customisation is possible – and there is an impressive and effective nine-band EQ in

The minimalist remote is joined by an iOS control app



AV INFO

PRODUCT:
Audiophile pre/
power combi

POSITIONING:
Classé's newest
entry-level home
theatre hardware

PEERS:
NAD Masters Series;
Yamaha CX/MX



The AMP5 (bottom) and Sigma SSP are styled to sit together on your AV shelf





An upgrade is planned for HDMI 2.0/HDCP 2.2

there too – but it will take some time to sort. The biggest problem is that the supplied remote is an ultra minimalist (and tiny) affair that requires you to configure buttons to your needs. This works well but as most family members don't want an extended tutorial on how to use a zapper, it's hardly ideal.

The SSP therefore places great demands on the free iOS app, but this is fairly basic in comparison to what mid-range AV receivers ship with these days, and will only function via the wired Ethernet connection. After

'The SSP moves objects around with fluid panache, while the AMP5 supplies masses of power'

encountering a few of these products over the years, I have a closed network in my kit rack, but if you are moving to the SSP from a wireless-capable product, it may infuriate.

Performance-first ethos

Regardless of its feature shortfalls, the Sigma duo does a great deal to win you over – it shares the same performance-first ethos as brands such as Primare and Anthem. And that's a good thing.

With a floorstanding set of Quadral Rhodium speakers still in situ (see HCC #251), the Classé manages to combine power and impact with exquisite levels of refinement. The joyride sequence in *Kingsman: The Secret Service* (Blu-ray) is tremendously powerful with plenty of force to it, but there is no sense of treble harshness or hardening up even with the volume dial cranked. There is an unburstable sense of power and headroom to the AMP5.

Away from action set-pieces, the Classés consistently deliver the basics. Dialogue is clear and easy to follow and my subwoofer

was kept on a tight rein, meaning that bass is powerful but avoids being bloated or dominating the upper registers.

Equally importantly, when the Classé duo needs to sound small and intimate, it does so effortlessly. There's a huge amount of processing horsepower here but the SSP rarely makes its presence felt in a readily obvious way. Balance and poise are the order of the day.

Effects placement is also excellent. The SSP moves objects smoothly around the soundfield, with natural, fluid panache. Everything is done with a view to making sense of the material onscreen rather than dragging your attention away from it, and the effect is undoubtedly very cinematic. The climatic performance of Caravan in *Whiplash* (Blu-ray) sees the Classé kit well in its element. It keeps pace with the whirlwind of beats and breaks and the tonality is utterly convincing – important as a drumkit is a rather more familiar sound to listen to than most action movie staples. There's a genuine whiff of the high-end to the way that the Sigma goes about its business at an almost terrestrial price point.

This is also apparent in stereo. If you are looking for a combi to do justice to both music and movies, this might just be it. While a wireless connection would be convenient, the stability of the wired one is ideal for high-res audio and the same unforced but accurate tonality is present. Another area where the Classé is particularly strong is with broadcast TV material. Even when working with a stereo signal, and at low volume levels, the pairing feels immersive and detailed.

Audiophile all-rounders

This all-round ability is what marks the Sigmas out as being truly exciting separates. They are as happy delivering high-res stereo as they are blasting through movie night, and the promise of that 4K update gives a level of reassurance to their longevity. Operational niggles aside, this is a good option for those seeking high-end thrills ■

ON THE MENU

→ Settings and calibration are handled mostly by the SSP's front-panel touch display, which can also be displayed onscreen. This has plenty of sub-menus to drill into – be prepared to get your fingers dirty

SPECIFICATIONS

CLASSÉ SIGMA SSP

DOLBY TRUEHD: Yes. Plus EX, Pro-Logic IIz
DTS-HD MASTER AUDIO: Yes. Plus ES, Neo: 6

THX: No

MULTICHANNEL INPUT: No

MULTIZONE: Downmix stereo audio zone

AV INPUTS: Yes. 5 x digital audio (2 x optical and 3 x coaxial)

HDMI: Yes. 8 x inputs; 1 x output (1.4a)

VIDEO UPSCALING: No

COMPONENT VIDEO: No

DIMENSIONS: 433(w) x 370(d) x 95(h)mm

WEIGHT: 8.21kg

ALSO FEATURING: Nine-band EQ; touchscreen display; 192kHz/24-bit UPnP client (including FLAC, ALAC and WMA playback); USB input; AirPlay; iOS control app; Ethernet; rack-mount ears; stereo XLR input/output; IR input/output; RS232

CLASSÉ SIGMA AMP5

POWER OUTPUT (CLAIMED): 5 x 200W
CONNECTIONS: 5 x phono inputs; WBT speaker terminals; stereo XLR input

DIMENSIONS: 433(w) x 370(d) x 95(h)mm

WEIGHT: 10.48kg

ALSO FEATURING: All-metal construction using chassis as the heatsink; bespoke switch mode power supply with Power Correction Factor; rack-mount ears; IR input/output; 12V trigger input/output; RS232

HCC VERDICT



Classé Sigma SSP/AMP5

→ £8,500 approx → www.classeaudio.com

→ Tel: 0800 232 1513

HIGHS: Superb audio performance in multichannel and stereo; excellent build and finish; planned 4K update

LOWS: Poor control interface; limited specification; no Android app or Wi-Fi

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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Ultra HD for everybody

Hunting for a bargain, **John Archer** throws five sub-£1,000 4K TVs from brands big and small into the test pit. Can these entry-level UHD sets satisfy his high-performance habits?



FAULTY TOWERS

It's earthquakes vs The Rock in disaster hit *San Andreas* p96

FINLUX 55UT3EC320S-T

Curved 55-incher from the upstart TV brand

JOHN LEWIS 49JL9100

A high-street set with a little help from LG

PANASONIC TX-50CX700B

Is there more to this 50in LED than its Firefox OS?

PHILIPS 55PUT6400

Another big contender, but with Android smarts

SAMSUNG UE40JU7000

Can a 40in TV make the most of a 4K panel?

Finlux 55UT3EC320S-T

It's big and curved and keenly priced – but is that enough to gain this Finlux a recommendation?



THE DAYS WHEN Finlux only churned out lowest common denominator TVs with nothing more than budget pricing in mind appear to be over. Its new 55UT3EC320S-T (try saying that after you've had a few) reads like a 'what's what' of today's big TV features.

For starters its 55in screen is curved. Second, that curved screen squeezes in a native 4K UHD pixel count of 3,840 x 2,160. Third, it's a Smart TV equipped with video streaming apps. In fact, the only thing about the 55UT3EC320S-T that isn't surprising is that it's still affordable at £900.

It doesn't look like a budget TV. The curved screen and on-trend skinny bezel get it off to a strong start that's rounded out nicely by a silver stand that curves forward in opposition to the concave panel.

The 55UT3EC320S-T hits most of the right connection notes with its four HDMI, three USBs and integrated Wi-Fi. The HDMI, three USBs and integrated Wi-Fi. The HDMI, three USBs and integrated Wi-Fi. The HDMI, three USBs and integrated Wi-Fi.

The only connectivity shortcoming is that it can't handle Netflix 4K – the Finlux Netflix app is HD only. This is a serious pity given how few other sources of native 4K content there are right now. In fact, the 55UT3EC320S-T is the only TV in this group that doesn't support turbo-charged Netflix.

The set's Smart TV features aren't just limited by the lack of 4K streaming support,

either. There's currently no support for Amazon Prime Instant Video or any of the key UK broadcaster catch-up channels bar BBC iPlayer. The 55UT3EC320S-T does offer 3D playback, though, using the active format, and even chucks in a couple of pairs of glasses.

Split personality

Picture quality is the ultimate mixed bag. For instance, while on the one hand it produces slightly deeper black levels than the majority of budget TVs, it undoes much of this good contrast work by suffering with a couple of areas of quite strong backlight clouding along the bottom of its pictures. And, while it produces slightly more shadow detail than some of its rivals, colours in dark parts of the picture tend to look unconvincing and basic.

Colours during brighter sequences, such as the alien opera sequence of *The Fifth Element*, appear punchy and balanced, yet these scenes also reveal a lack of finesse in the 55UT3EC320S-T's colour reproduction. This shortage of colour resolution damages the set's sharpness with both upscaled and native 4K material, too; my 4K footage of World Cup football and cityscapes looks markedly softer than it does on any of the other sets here, while Bruce Willis's upscaled face on *The Fifth Element* BD looks alarmingly waxy – almost as if he's hyperspaced into *Mannequin*.

And I'm still not done with the Finlux 55UT3EC320S-T's split picture quality

personality. For while on the one hand its motion processing is quite good, limiting judder without causing nasty side effects, it doesn't tackle resolution loss over moving objects particularly well – and this is an issue that always stands out like a sore thumb in a 4K context.

Pacific Rim's 3D thrills expose yet another issue. Stereoscopic images are bright, natural, colourful and reasonably detailed, but the tech-porn thrills of the giant robots have the edge taken off them – literally – by some fairly heavy crosstalk ghosting.

All in all, while it's great to see an ostensibly budget brand flexing a few high-tech muscles, it has to be said this Finlux hasn't got us off to a particularly glorious start.

SPECIFICATIONS

3D: Yes. Active
ULTRA HD: Yes. 3,840 x 2,160
TUNER: Yes. Freeview HD
CONNECTIONS: 4 x HDMI; 3 x USB; optical digital audio output; D-Sub PC port; headphone jack; CI slot
SOUND: 10W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 1,232(w) x 713(h) x 106(d)mm
WEIGHT (OFF STAND): 37.2kg
FEATURES: Built-in Wi-Fi; USB multimedia playback; DLNA playback; Smart TV features including HD Netflix and BBC iPlayer; 100Hz playback

John Lewis 49JL9100

For its second run of flatscreens, John Lewis enters the 4K era in a blaze of colour



THE JOHN LEWIS brand name might not be one you readily associate with the TV world, but the 49JL9100 is actually part of its second generation of flatscreens. And if that's not enough heritage for you, John Lewis TVs are actually made by LG.

After kicking off with high-end models in 2014, this year's John Lewis sets are focusing more on value. The 49in 49JL9100 costs an appealing £930 – even though the native 4K resolution that qualifies it for this group test is joined by LG's brilliant WebOS Smart system. This has a friendly design, slick navigation and is pretty well equipped with key video apps, including 4K-capable versions of both Netflix and Amazon Instant Video, plus the Demand 5 and BBC iPlayer catch-up apps. There's currently no All4 or ITV Player on tap, though.

Design-wise the 49JL9100 falls short of the strong, speaker bar-integrated look of last year's John Lewis models – though its brushed aluminium finish and boldly angular stand still ensure it's a looker.

Close to the edge

Producing the 49JL9100's pictures is one of LG's IPS panels, driven by an edge LED lighting system with local dimming elements, and an LG picture processing engine stocking UHD upscaling.

The 49JL9100 is stuffed with picture calibration tools, including colour and gamma management, so it's no surprise to find a couple of ISF modes among its presets. Unfortunately, though, no amount of tweaking

enabled me to get the 49JL9100's pictures looking particularly great.

The core problem is a familiar one with IPS panels, namely that dark scenes don't look convincing. The screen just isn't able to produce a convincing black colour. In its native state, with no contrast boosters in play, parts of the image that should look black instead look grey and milky. Yet while you can greatly improve the black level response with the set's dynamic contrast and local dimming tools, this leaves dark parts of the picture looking pretty much devoid of shadow detail.

The local dimming system additionally causes slight vertical light pollution around bright highlights in predominantly dark shots, though limiting the set's brightness setting can keep this issue down to a tolerable level.

The dynamic contrast tool additionally causes some flickering during dark scenes as it adapts to changes in the content, and the set also has a bad habit of turning off the backlight completely during fade to blacks or very dark sequences.

Colour strengths

So far I haven't exactly been kind to the 49JL9100, but it does have some good points. Its colours are unusually rich for such an affordable 4K TV, yet this vibrancy doesn't come at the cost of balance and subtle toning. In fact, the screen's colour resolution does a nice job of underlining the screen's 4K resolution, helping 2,160p pictures appear gloriously sharp and crisp.

SPECIFICATIONS

3D: No
ULTRA HD: Yes, 3,840 x 2,160
TUNER: Yes, Freeview HD
CONNECTIONS: 3 x HDMI; 3 x USB; Scart socket; optical digital audio connection; headphone jack; CI slot
SOUND: 20W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 1,104(w) x 645(h) x 56.7(d)mm
WEIGHT (OFF STAND): 15.9kg
FEATURES: Built-in Wi-Fi; USB multimedia playback; DLNA streaming; Magic Remote; 4K streaming support; IPS panel; WebOS platform

The set's motion handling is good enough – especially if you use the lowest-power setting of LG's TruMotion processing system – to keep this sharpness largely intact when handling action scenes like Leeloo's scrap with a bunch of ugly aliens in *The Fifth Element*. And watching the richly saturated tones used throughout the madcap Luc Besson sci-fi also reveals the 49JL9100 to be an efficient upscaler of hi-def, although there are sets that do an even better job elsewhere in this 4K face-off.

Another strong point is the 49JL9100's sonics – its peppy bright pictures are joined by an expansive, clear, well-rounded and distortion-free audio performance.

The pity is that all of the 49JL9100's positive points just make it even more unfortunate that the wheels come off so much when the going gets dark. Oh, and it's not 3D either, which is a strange feature omission. ➤

Panasonic TX-50CX700B

This sleekly-styled Smart cookie impresses with its beautifully balanced picture performance



IT'S ALWAYS A good sign when you find yourself double-checking a TV's price because you can't believe it's right. This is exactly what happened when I started putting the 50CX700B through its paces.

After all, as well as bearing the brand of one of the TV world's most respected AV companies – plus a native 4K pixel count in its 50in screen – it boasts a raft of new Panasonic screen and processing technologies. These include a 'Super Bright', ultra-transmissive panel able to produce more brightness from lower power consumption; new wider colour gamut phosphors; and Panasonic's so-called Studio Master Drive processing engine, focused on making pictures look closer to a film director's original vision.

Its picture engine isn't the only thing about the 50CX700B that's new – its Smart TV system is another radical departure from anything Panasonic has tried before. Built on Mozilla's Firefox OS system, it should make it easier for developers to create apps for Panasonic's TVs. See my colleague Steve May's review of the Panasonic TX-50CX802 on p40 for more about the Firefox system.

Wrapping up the key features are 3D support (though you don't get any free 3D spex) and a solid selection of connections that includes three HDMI and the *de rigueur* USB, Wi-Fi and Ethernet hookups.

The 50CX700B's picture quality is excellent for an £850 50in 4K TV. Leading the way is an outstanding contrast performance that delivers one of the deepest – but also most

natural – blacks I've seen on an LCD TV. This immediately makes dark sequences (in this case the outer-space shots in *The Fifth Element*) seem massively more immersive and believable than they've looked on the previous two challengers – particularly as the Panasonic's native contrast is so good it doesn't have to be distractingly aggressive with its dynamic contrast tools. Shadow detailing is excellent, too.

The 50CX700B builds upon this black-level strength with impressive colours. It doesn't deliver the most vibrant palette in this group test, but it arguably delivers the most natural one. Even with material as over-the-top in colour terms as *The Fifth Element*'s opera scene, it exhibits a degree of balance, range and finesse with its colour tones that's truly exceptional for an affordable TV.

The 50CX700B's ability to render colour nuances other screens cannot also helps it shine with native 4K content, easily revealing the extra depth as well as detail the higher resolution format makes possible.

Scaling new heights

Panasonic's HD upscaling engine proves supremely efficient. It doesn't engineer as blisteringly sharp a look as some rivals – most notably the Samsung 40JU7000 – but it excels at eliminating noise during the upscaling process, leaving you with believable, nuanced results.

Inevitably, considering the 50in screen size and £850 ticket, the 50CX700B has some

SPECIFICATIONS

3D: Yes. Active
ULTRA HD: Yes. 3,840 x 2,160
TUNER: Yes. Freeview HD
CONNECTIONS: 3 x HDMI; 3 x USB; SD card slot; headphone jack; Scart; composite video input; optical digital audio output
SOUND: 2 x 10W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 1,121(w) x 650(h) x 46(d)mm
WEIGHT (OFF STAND): 16.5kg
FEATURES: Built-in Wi-Fi; USB multimedia playback; SD card multimedia playback; DLNA multimedia playback; Studio Master Drive processing; Firefox Smart TV system

flaws. There's a noticeable loss of resolution over moving objects, and it isn't as bright or dynamic-looking as its rivals – although this is arguably a side effect of its drive to deliver 'accurate' rather than showy pictures. The dynamic contrast system that I'd mostly recommend you use occasionally causes a distracting brightness 'leap'. And, as with all of the contenders here bar, perhaps, the Samsung, the 50CX700B struggles to convince with standard-definition sources.

3D pictures don't suffer much with crosstalk and benefit from its exemplary contrast performance, but do lack detail and sometimes exhibit uncomfortable motion handling. Overall, though, the 50CX700B can still claim to be a picture enthusiast's TV at a mainstream price.

Philips 55PUT6400

It's out with Ambilight and in with Android for Philips' bargain-priced 55-incher



IT'S TAKEN PHILIPS longer than most to get its 2015 TV range out there, but it arrives with a bang in the shape of the 55PUT6400. Remarkably, this 55-incher can be had for even less money than the same-sized Finlux 55UT3EC320S-T, despite its native 4K UHD core being joined by Google's Android Smart TV system and one of Philips' renowned picture processing engines.

Two things the 55PUT6400's aggressive price doesn't get you, though, are 3D playback and Philips' Ambilight technology. There are no coloured light pools spilling out from its edges. While this is a shame, at least the set's edges are attractive anyway with their angular, minimalist look.

The 55PUT6400's connectivity initially looks strong with four HDMI, three USBs and integrated Wi-Fi. However, closer inspection reveals that only one HDMI is equipped with the HDCP 2.2 protocols needed for 4K playback. Although, to be fair, external 4K sources aren't exactly common right now.

Working behind the scenes is Philips' Pixel Plus Ultra HD processing engine. This is one of the brand's least powerful efforts, as you might expect given the 55PUT6400's price tag. However, even this engine brings Philips' Natural Motion processing, plus Ultra Resolution fettling for making all content – even native UHD – look sharper, and various contrast and colour enhancements.

The contrast situation should be helped, too, by the 55PUT6400's use of a direct LED lighting system (where the LEDs sit behind the

screen) and micro-dimming technology that tweaks the image settings after analysing 6,400 different zones of any given frame.

Getting in bed with Google

The Android Smart TV system solves Philips' traditional issues with insufficient Smart TV content, and it runs more stably on the 55PUT6400 than it does on Sony's Android sets. However, the Android interface feels clunky, overpowering and short of customisation options. Plus there's currently no Amazon Instant, ITV Player, 4OD or Demand 5 app support. Hmmm.

Out of the box the 55PUT6400's pictures can look quite unnatural, with over-saturated colours, noise, and obvious processing artefacts. Only the Movie preset avoids these issues as it turns off all the processing tools – but this mode goes too far the other way.

Fortunately, after toning down the colour enhancement system, turning off noise reduction systems for UHD and most HD content and setting the Contrast Mode to Standard, you get pictures which mostly impress for an affordable bigscreen 4K TV.

Contrast is particularly strong. As the 'evil' planet grows towards the ship that's attacking it in *The Fifth Element*, this screen delivers a slick combination of deep blacks for the space shots and bright, dynamic colours for the interior ship elements, often within the same frame. The screen's blacks aren't affected by backlight clouding issues either, and only exhibit rare and minor brightness 'jumps'.

SPECIFICATIONS

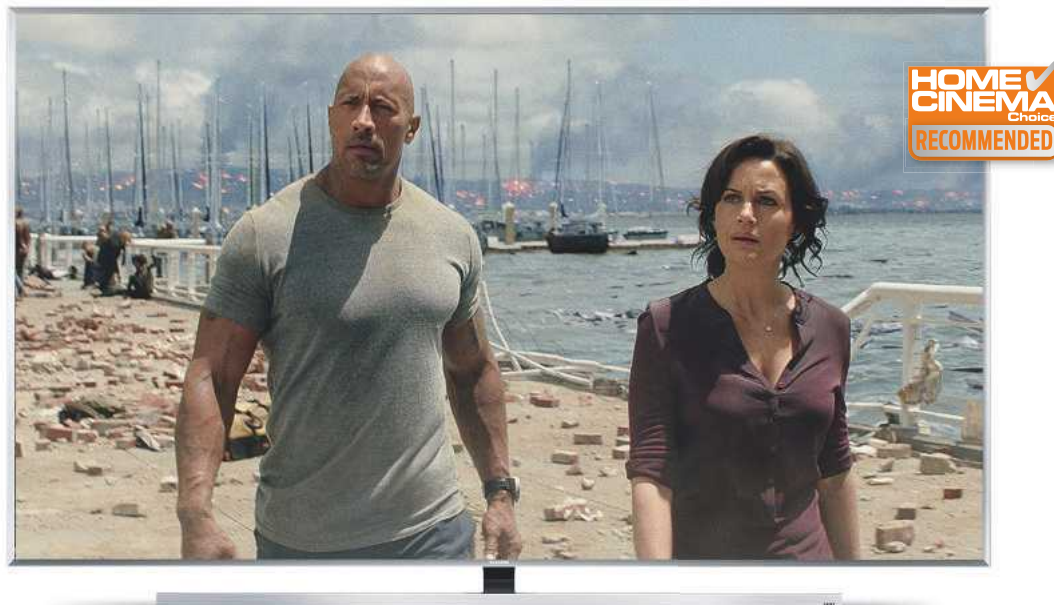
3D: No
ULTRA HD: Yes. 3,840 x 2,160
TUNER: Yes. Freeview HD
CONNECTIONS: 4 x HDMI; 3 x USB; optical digital audio output; Scart; Ethernet; composite video input; component video input
SOUND: 20W
BRIGHTNESS (CLAIMED): 300cd/m2
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 1,239(w) x 712(h) x 79(d)mm
WEIGHT (OFF STAND): 15.3kg
FEATURES: Built-in Wi-Fi; USB multimedia playback; DLNA multimedia playback; Android Smart TV system; Philips Pixel Plus Ultra HD processing

Luc Besson's crazed colour palette is painted suitably boldly, yet the aggression doesn't stop the 55PUT6400 from also delivering good tonal subtlety in tricky areas, like Leeloo's orange hair. This colour finesse helps deliver good levels of hi-res impact from native 4K UHD sources, and Philips' Natural Motion system does a reasonable (though not perfect) job of keeping moving objects sharp without icky processing side effects, provided you stick at its minimum power setting.

Overall, while the 55PUT6400 is a talented 55in TV for its money, no matter how much I tinkered with its pictures I still sometimes found them a bit artificial-looking – as if Philips' processing either isn't powerful enough to realise its ambitions or has a strained relationship with the panel it's working with. ➤

Samsung UE40JU7000

This glam-looking 40in set has its work cut out to impress amongst its bigger rivals



SAMSUNG'S UE40JU7000 DOESN'T get off to the best of starts. It's the joint-second most expensive TV in this roundup, but is also comfortably the smallest – just 40 inches across in its cotton socks.

Many folks will tell you this just isn't big enough to justify a 4K UHD resolution. Personally I disagree, since 4K resolution isn't only about more detail; it can also help deliver a greater sense of depth and help colours appear with more definition and finesse. Especially when, as is the case here, the TV has the processing brains to fully unlock 4K's potential.

I'm getting ahead of myself, though. Going back to basics, the UE40JU7000 is an attractive flatscreen with a sleek silver frame and nifty stand design that finds the set appearing to almost hang in mid-air above a forward-jutting, aluminium bar.

Samsung's set excels with its connections. A quartet of HDMI and trio of USBs are found on a small external connections box, while the tuner inputs are housed on the main TV. But unlike the larger 'One Connect' boxes you get with Samsung's 9000 and 9500 series TVs, this external gizmo can't be swapped in the future to update the TV with new features and connectivity.

The UE40JU7000 also doesn't share the ability of Samsung's SUHD TVs to play HDR content – but this is perfectly acceptable at the sub-£1,000 4K TV level. And elsewhere the set is very well-featured for its money, Quad Core processing, one of Samsung's latest

contrast-rich home-grown LCD panels, and its new Tizen Smart TV engine. The latter combines a reasonably intuitive 'flow' with attractive, economical graphics and an increasingly tasty app library that provides Amazon and Netflix's 4K streams, as well as all the main UK catchup TV services.

Contrast king

As with nearly every 4K TV I've tested from Samsung this year, the UE40JU7000's picture quality is superb. It's built on a foundation of excellent contrast, which finds the harsh stage-lighting and bold colours of *The Fifth Element's* opera performance standing out beautifully against the darkness of the space backdrop. There's little evidence of backlight bleed in the dark areas too, despite the TV employing edge LED lighting.

While the UE40JU7000 lacks the colour range of Samsung's SUHD TVs, this demo sequence is tailor-made to show off what's still an enviably potent colour performance in terms of both the range of tones the TV can hit and the subtleties it can render between its extremes. And colour subtlety as impressive as this proves helpful in delivering more impact from the TV's 4K resolution.

Motion is rendered cleanly and reasonably crisply when using the set's motion processing on its low or even middle setting, and while the TV is clearly at its pristine best when fed native 4K content, it's a superb upscaler of hi-def sources, adding oodles of clean, extra detail and pixel density.

It's also the best 3D performer in this roundup. The Samsung, which uses active technology, adds detail to 3D Blu-rays without generating noise or excessive crosstalk ghosting. Even its sound is fine for such a relatively small set, delivering a reasonably detailed and open soundstage, only let down by a lack of bass and a slightly shrill tone during *The Fifth Element's* action scenes.

Yet having said earlier that I don't buy the argument that you need a huge TV to enjoy 4K, I must admit that its relative smallness is the one thing about the UE40JU7000 that slightly upsets me. It just feels as if all of its undoubted picture prowess deserves to be painted on a much larger canvas.

SPECIFICATIONS

3D: Yes. Active
ULTRA HD: Yes. 3,840 x 2,160
TUNER: Yes. Freeview HD
CONNECTIONS: 4 x HDMI; 3 x USB; component video; composite video; headphone port; Ethernet; optical digital audio output; RS232; CI slot
SOUND: 20W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 917.7(w) x 535.6(h) x 66.8(d)mm
WEIGHT (OFF STAND): 8.3kg
FEATURES: Built-in Wi-Fi; USB multimedia playback; DLNA multimedia playback; Tizen-driven Smart system; Precision Black Pro; Ultra Clear Pro panel; voice control; motion-control ready

Final standings

THE PRICES OF 4K TVs are plummeting. Last year you'd have struggled to find a 55in 4K TV for less than £1,500; this grouptest has two selling for £850. Yet while this is great news for consumers, busting below £1,000 currently comes with a few strings attached, be they simply the size of the screen, reduced quality in the core LCD panels or fairly basic processing engines. So are any of the five here essential purchases? Yes, actually...



AS AN ALL-ROUND proposition, my favourite set of this Ultra HD quintet is the Panasonic TX-50CX700B. This screen's contrast performance and picture processing are both outstanding, helping it deliver the most cinematic images of the grouptest challengers on a screen that's big enough (50in) to show off 4K's advantages. And then there's the classy and intuitive Firefox Smart system and neat aesthetics to consider – in addition to its tantalising £850 price tag.

Following close behind

Below the Panasonic champion, I've ranked the Philips

55PUT6400 and Samsung UE40JU7000 in joint-second place. The 40in Samsung delivers the most natural and engaging images of these two TVs; offers 3D playback; has a Smart TV system that is friendlier than the rather overwhelming Android one found on the 55PUT6400; and it's easier to get its pictures set up than it is on the Philips display. However, it's impossible to ignore the fact that the 55PUT6400 gives you 15 more screen inches – particularly useful considering these are 4K screens – for actually less money than the Samsung.

In fourth place I've put the John Lewis 49JL9100. Much of the time

there are no problems with this flatscreen whatsoever; it looks pretty enough, and its pictures are bright and punchy. But it fails to convince with dark scenes in darkened rooms, which could be a pretty distracting problem for the sort of movie fan likely to be reading this magazine.

And propping up the table is the Finlux 55UT3EC320S-T. I admire this set's ambition – curves and all – but it's the only model in this grouptest unable to handle streamed 4K video, which is a serious blow, and its hit-and-miss picture quality struggles to do justice to the many joys 4K images can bring to the table ■

HCC VERDICT



Finlux 55UT3EC320S-T

→ £900 approx

→ www.finlux-direct.com

HIGHS: Cheap for a large, curved 4K TV; pictures are bright and reasonably contrast-rich; two pairs of 3D specs

LOWS: Colours look basic; backlight clouding along the bottom edge; no 4K streaming support

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

HCC VERDICT



Panasonic TX-50CX700B

→ £850 approx

→ www.panasonic.co.uk

HIGHS: Superb picture quality; good price for what's on offer; Firefox OS is excellent

LOWS: Minor motion flaws; occasional backlight issues; pictures aren't the brightest, despite 'Super Bright' panel

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

HCC VERDICT



John Lewis 49JL9100

→ £930 approx

→ www.johnlewis.co.uk

HIGHS: Bright, colourful, crisp picture quality; attractive design; slick WebOS system

LOWS: Uninspiring native contrast; distracting contrast-boosting tech; no 3D support

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

HCC VERDICT



Philips 55PUT6400

→ £850 approx

→ www.philips.co.uk

HIGHS: Excellent value; mostly good picture quality, especially with native 4K content

LOWS: Pictures can look a little artificial; needs a lot of setup work; Android TV system is cumbersome

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

HCC VERDICT



Samsung UE40JU7000

→ £900 approx

→ www.samsung.co.uk

HIGHS: Excellent picture quality; attractive design; straightforward and comprehensive Smart TV system

LOWS: Screen is a bit too small to do UHD and the rest of the picture quality justice; pricey considering the size

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



Budget beamer gets the basics right

Acer's H6520BD caters for home cinephiles on meagre budgets. **Martin Pipe** is generally impressed, despite the PJ's sometimes rough-n-ready attitude...

AV INFO

PRODUCT:
Single-chip Full HD DLP projector with 3D support

POSITION:
Pegged alongside the oddly-similar H6510BD

PEERS:
Optoma HD25;
BenQ W1070

A WHILE BACK, I reviewed Acer's commendable H7532BD – a £900 single-chip DLP projector with Full HD resolution and 3D capability. Technology, however, moves on. We now have the H6520BD, which boasts slightly-reduced functionality but for around £400 less. Confusingly, another Full HD 3D model of similar price and name to this model (the H6510BD) is also available from Acer. If their (close) specs are anything to go by, physical design and slight optical differences differentiate the two.

The H6510BD has a 1.3x lens and a minimum projection distance of 1.5m, while the H6520BD tested here has a 1.1x lens and a projection distance of 1m or more. A wireless facility is claimed, via an optional HDMI dongle, for the H6520BD. However, this can be added to the H6510BD, too. Infuriatingly, the H6520BD lacks the other model's integrated

control panel. As a result, the handset is essential for operation under most circumstances. Furthermore, the PDF manual covers over 50 models. This is asking for trouble, especially among newcomers.

It might be a budget model, but the quiet-running H6520BD delivers the home cinema essentials. Its inputs are sensibly side-mounted for ease of access. They include two HDMI 1.4a ports (one with MHL for mobile devices) and VGA (analogue RGBHV). A USB port, rather than the industry-standard RS232, is provided for installers and professional use. For uncritical applications, there's an on-board audio system that sounds thin and gutless.

That 1,920 x 1,080 resolution (with 24p refresh-rate support) is achieved using a single 0.65in 16:9 DLP chip and a six-segment colour wheel. Acer claims a 10,000:1 contrast ratio and 3,500 Lumens brightness. The 3D

capability is Active Shutter but, perhaps understandably, no glasses are supplied. Thankfully, the DLP-Link protocol is employed here and so many compatible goggles are available to you.

Zoom and focus are manual operations, with the controls found on the lens barrel itself. Adjustment is easy, and I found settings are held over time – despite the projector's tendency to get rather warm in use. A series of adjustable feet help you align the image to

'It might be a budget model, but the quiet-running H6520BD delivers the home cinema essentials'

your screen if the projector is placed on a table. There is no lens shift provided. The onboard scaler will provide vertical keystone correction if you cannot avoid it.

To give you a rough idea of what can be achieved with this bargain beamer, a 3.3m projection distance will throw an image of approximately 100in measured diagonally – double that for a 200in picture. Depending on the screen you're using, the picture might 'spill over' the screen's edges in smaller rooms – even with minimal zoom. This was certainly true in one of my situations (throw distance just over 3m, 85in effective screen area).

With no signal, basic setup functions and a test pattern are available in Menu mode. With a source applied, though, the full gamut of adjustments is offered. One of the setup options in the menus compensates for wall colour; Acer understands not everyone will be employing a dedicated screen.

More important tweaks include colour temperature, gamma, Dynamic Black, Eco lamp mode and 3D settings. You can even grab an image from an incoming source and use it as a startup screen. There are six picture presets – change any of their adjustments, and it becomes the User setting. Sadly, only one of these is provided.

One of the HDMI inputs is MHL-ready



Packing a bright punch

To Acer's credit, little further adjustment was required to optimise the Movie preset. Domestic-sized pictures (say, 100in) are, however, exceptionally bright. The Eco mode tames this slightly, with the additional benefit of increasing lamp life. Disabling the 'BrilliantColor' feature was found to help, too. Naturally, blacks are moderately enhanced through such measures.

Even then, the H6520BD won't deliver the deepest blacks you'll ever see – but your eyes soon accommodate the very dark grey that is the best the PJ can muster. Much of the problem here is that even in Eco mode, the picture is still very bright, to the extent that the image is perfectly watchable in day-lit rooms.

For all this, the H6520BD does a good job when it comes to depth and contrast range. In Chapter 20 of enjoyable spy caper *Kingsman: The Secret Service*, the loyalty of newbie agent Eggsy is tested by him being tied to the tracks of an underground line. Detail is visible in the dark areas of the tube tunnel and between the sleepers, while the lights of the approaching train and the surrounding murkiness are kept in balance.

Another key aspect of video performance isn't forgotten. The random 'handheld' look of *The Hurt Locker's* opening chapter fails to confuse the H6520BD's processing – pictures are unspoiled by motion judder, and smooth movement (of passing vehicles and the bomb-disposal robot, for example) is preserved. The yellow tints and parched scenery carry well, and flesh tones are credible. With lesser material, such as standard-def TV, caption judder occurs very occasionally – and sometimes colour-lag is noticeable.

Less subtle colours are reproduced excellently – the blood and fire that is seen throughout much of *The Hurt Locker*, and the explosions of colour that follow Merlin's activation of explosive devices in *Kingsman...* are vividly rendered. However, other less welcome colours can spoil the fun. I'm talking about the rainbow effect, flashes of colour to which some viewers are more sensitive than others, especially during bright scenes. To be fair, it's not as bad here as on some past PJs, but it could have been banished with LED lighting or faster-spinning colour wheels.

3D material works well. In the Johnny Depp sci-fi yarn *Transcendence*, the effect is especially palpable with the overhead views of the Brightwood complex, the desert solar-arrays that provide its energy and the nanobot swarms that repair it.

Acer's H6520BD can be considered a solid budget buy. Sure, there are some cons (regarding setup flexibility in particular) but these are balanced by its mostly satisfying pictures. Don't expect miracles at this price point and you'll be fine ■

SPECIFICATIONS

3D: Yes. Active, DLP Link
4K: No. 1,920 x 1,080 (Full HD)
CONNECTIONS: 2 x HDMI; composite; component; VGA (15-pin D-sub); 3.5mm audio in (audio from HDMI supported, too); USB (control)
BRIGHTNESS (CLAIMED): 3,500 Lumens
CONTRAST (CLAIMED): 10,000:1
DIMENSIONS: 314(w) x 93(h) x 223(d)mm
WEIGHT: 2.5kg
FEATURES: 0.65in/1,920 x 1,080 DMD imaging device; 2x six-segment colour wheel; vertical-keystone correction; 'wall colour' compensation; DLP Link for (optional) 3D glasses; projected image 28in-300in (diagonal); projection distance 1m-9.8m; throw-ratio 1.48 to 1.62:1; grab image from video for startup screen; 1.1x zoom lens; one HDMI port MHL-compliant for mobile devices; built-in 2W speaker; 5,000-hour lamp life in Eco mode; BrilliantColor; Dynamic Black; 27dB running noise in Eco mode

HCC VERDICT



Acer H6520BD

→ £520 approx → www.acer.co.uk
 → Tel: 0371 760 1005

HIGHS: Bright and detailed images; twin HDMI inputs; Full HD and 3D support; unobtrusively quiet in operation; decent picture adjustments

LOWS: Noticeable rainbow effect; middling black levels; runs a little warm; no 12V trigger or lens shift

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

Technisat Audiomaster BT

Adrian Justins finds little to complain about with this fine-sounding soundbase

TECHNISAT'S

AUDIOMASTER BT looks suspiciously like a re-badged Canton DM50 but as the latter is a corker of a soundbase I'm not particularly worried. And it's not identical though, being merely 'powered by Canton.' But, like the DM50, HDMI inputs are absent – there are optical and coaxial inputs instead for connecting your sources, with Dolby Digital decoding (plus DTS TruSurround processing) on tap. Wireless Bluetooth – hence the 'BT' moniker – offers apt-X support. Build quality is great, but it's not the largest option around, measuring 55cm across.

The unit pumps 200W to its twin tweeters, two mid-range drivers and dual underside woofers, with a subwoofer line out provided for extra bass boost. Stereo phonos are onboard, too. All sockets are recessed and facing sideways to keep them from view, but they are cramped so you can't use thickly-braided

cables. There are no controls on the Audiomaster BT itself – use the nine buttons spread across an iPhone-sized remote control. In standby all you see through the grille is a tiny red light, switch it on and a scrolling dot matrix display appears.

Operation is easy thanks to a logical menu structure and slick operating system. The unit lacks lip-sync adjustment but offers treble and bass management.

Detailed delivery

The performance of this £350 soundbase is excellent, with pleasingly expansive and detailed sonics. The Audiomaster BT does equally well with broadcast TV and movies



The driver array features twin tweeters, mid-rangers and woofers

– *Insurgent* on Blu-ray showcases a robust, impactful bass nicely

anchoring the higher frequencies. Dialogue is rich and resonant while the soundtrack's effects are clean and discrete.

The surround mode does open up the soundstage but at the expense of dialogue sharpness; stereo music streamed via Bluetooth benefits puts the Audiomaster back on the right track, offering smooth delivery ■

HCC VERDICT

Technisat Audiomaster BT → £350

Overall ★★★★★

www.genevalab.com → £650 approx

Geneva AeroSphère Large

This dramatic wireless speaker won't suit everyone says **Steve May**, but that's a good thing

THE GENEVA AEROSPHERE Large is many things, but subtle isn't one of them. Star attraction of Geneva's wireless streaming audio system, it's as much a design statement as a music-maker. And in a world where cookie-cutter speaker systems rule, that's a good thing. Available in Black, White or livid Red finishes, the AeroSphère can be installed standalone, or as part of a larger AeroSphère ecosystem.

Ready for action

The speaker is Bluetooth and Wi-Fi-enabled and can be used with

Geneva's speaker is available in black and white finishes, too



Geneva's Base, a hub able to stream CD, AM/FM radio and DAB. Four AeroSphère speakers can play at the same time. There's on-body power and setup buttons, plus a stereo mini-jack line input for a local player. No USB port though, which seems a shame.

The lollipop enclosure contains a multi-drive array and measures a substantial 40cm across. Inside are two 1in tweeters, a pair of 4in mid-range woofers and an up-firing 6in subwoofer. These are arranged in separate chambers, powered by dedicated digital amplification. The AeroSphère looks like it should be omnidirectional,

but the drivers actually face forward in the direction of the illuminated Geneva logo. You can mount it on an optional floor stand.

Audio performance is influenced both by where it's used, and your relative position. It's best suited for deployment in a large, open-plan space; when placed in a corner, the bass booms somewhat, so take care. The soundstage is wide and proves fun to listen to.

It's easy to imagine the AeroSphère Large in a trendy loft apartment or designer pad. If you're looking for an exciting alternative to the multiroom mainstream, it's definitely worth sounding out ■

HCC VERDICT

Geneva AeroSphère Large → £650

Overall ★★★★★

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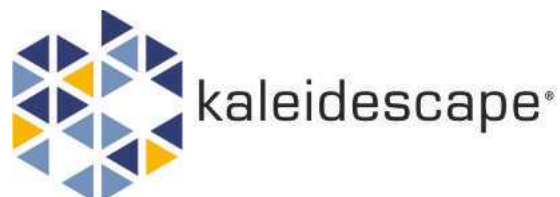
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Satellite done simply

Humax has tweaked its Freesat Freetime PVR range with a new design and a lower price tag. **Mark Craven** suggests it's a no-brainer for subscription-phobic dish owners



LAST ISSUE WE got our mitts on Humax's YouView-powered Ultra HD PVR (for BT subscribers). Here we have a different proposition altogether from the brand. The HDR-1100S is a Freesat Freetime-driven PVR, designed to give satellite dish owners a fee-free catch-up-heavy TV experience.

It's available in three guises. The 500GB version here sells for £190. Hoarders may choose to step up to the 1TB (£220) or 2TB (£300) models. Beyond the HDD capacity, all three share the same features.

The box itself is smaller compared to the previous HDR-1010S (which only shipped in a 1TB iteration). To accommodate this, the LCD front-panel display has been eradicated, and the rear-mounted Scart connection has gone. Just 28cm across and 4.5cm high, it's easy to find space for it on an AV shelf.

Connections now run to HDMI and Ethernet ports, optical digital and analogue stereo audio outputs and twin USBs. Wi-Fi is integrated, which is extremely useful as there are plenty of 'net-connected features to explore. Catch-up apps for BBC iPlayer and ITV Player are now joined by All4 and Demand5

– ones that were unavailable when we looked at the HDR-1010S previously. You also get YouTube and Curzon Home Cinema, plus some less interesting options buried in the Humax Portal.

The box will also stream content from connected DLNA devices. You can play

files from USB as well, and add them to the onboard HDD for local recall. This is welcome functionality if your TV plays dumb.

Lemon-squeezy

Where the HDR-1100S excels is with usability. Anyone disconcerted by some of the jargon that accompanies satellite technology is in safe hands here. The user guides are foolproof, supplied cabling includes HDMI and Ethernet, and setup is a well-guided step-by-step process. Installation takes only a few minutes.

Ease-of-use extends to day-to-day operation. The Freesat Freetime interface may sport a curiously dingy dark-green livery, but it's mostly intuitive. Scrollback on the EPG to find on-demand content, scroll forwards to find programmes to record. You'll soon get it.

A couple of issues, though: pressing keys on the supplied handset is accommodated by an irritating, audible click, and the Freetime EPG is so committed to natty transitions and pop up info bars that it can feel a bit sluggish. This isn't a tawdry PVR by any means, but I rate Sky's hardware – for instance – slicker.

The recordings menu is excellent. Here you can sort your archived shows to show only HD offerings, ones that you haven't watched, series links, etc. Twin tuners enable the usual timeshifting flexibility.

Image quality from the satellite channels is solid – BBC HD appeared crisp and detailed. Net-delivered fare can be less impressive; trailers streamed via the Curzon Home Cinema app frequently kickstarted with blocky artefacts before getting their act together.

So with the HDR-1100S, Humax continues its PVR supremacy – this is generally very well conceived. Those tired of the Sky life will snap it up. Or its now end-of-line 1TB predecessor, which has had its price slashed... ■

SPECIFICATIONS

HDD: Yes, 500GB

TUNER: Yes, 2 x DVB-S2

CONNECTIONS: 2 x USB inputs; 1 x HDMI output; Ethernet; stereo phono output; 2 x USB

DIMENSIONS: 280(w) x 48(h) x 200(d)mm

WEIGHT: 1kg

FEATURES: Built in Wi-Fi; Freesat Freetime service with rollback EPG; Showcase recommendations; Humax portal; catch-up/VOD apps including BBC iPlayer, ITV Player, All4, Demand5, YouTube and Curzon Home Cinema; HDMI and Ethernet cable supplied; Series Link; compatible with Freesat app (remote recordings possible); media playback from DLNA/USB/HDD

AV INFO

PRODUCT: Wi-Fi-ready Freesat Freetime PVR

POSITION: Humax's new line – 1TB and 2TB versions available

PEERS: Humax HDR-1010S; Sky+HD; Freesat Freetime-enabled TV

HCC VERDICT

Humax HDR-1100S

→ £190 approx (500GB)
→ www.humaxdigital.com/uk
→ Tel: 0333 577 7545

HIGHS: Easy to set up and use; good range of connected services; home media playback; well-designed recordings menu

LOWS: Noisy handset; interface could be slicker; not much of an upgrade on HDR-1010S

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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The TV robot with a multiple personality

WeTek's quirky little Play is a media player with a difference – as [Martin Pipe](#) discovers

AV INFO

PRODUCT:
Android-powered media player

POSITION:
Currently the only product in WeTek's lineup

PEERS:
WD TV Live;
Netgear NeoTV

ALL OF THE mainstream digital TV receivers and media boxes out there use proprietary operating software (firmware) to run the works and determine how they interact with the outside world. That's why every major brand seems to have a unique behaviour, look and feel. The delightful little package that is the WeTek Play takes a different tack, insofar that it runs the Android Jellybean operating system with which many smartphone users will be familiar. Indeed, Google has itself certified the Play – which is built around a dual-core AMLogic processor, Mali graphics engine, 1GB of RAM and 4GB of flash storage.

Sounds like a little computer, doesn't it? Yes, but as this one isn't a phone or tablet there's no touchscreen to control things. Instead, you get an oval-shaped remote with enough buttons to deal with everyday usage – and a mouse emulation mode. This AirMouse is handy for navigating your way around the web with Google Chrome – one of the apps

The WeTek Play is supplied with a remote control



that's provided with the default pre-loaded firmware (WeTek OS Android).

The remote uses radio, rather than infra-red, and so it will see through (non-metallic) cabinets and so on.

Like the average smartphone, the Play supports Bluetooth and Wi-Fi; an Ethernet port is included too. AV connectivity is basic; the only alternative to HDMI (with the adjunct of optical digital audio) is composite AV – and even then, you don't get the connecting cable. Yet for some reason a RS232 'debugging' cable is supplied. You can take the box from the geek, but you can't take the geek from the box...

Also round the back is a cover that is removed to reveal a slot for an optional (£20) plug-and-play tuner that's compatible with standard- and hi-def TV. One has two DVB-S/S2 tuners for satellite; the other is a single

DVB-T/T2 model for terrestrial reception. You can also buy Plays with the tuner of your choice pre-installed. Fitting it yourself as an upgrade is easy, although you must

reset the box with the supplied tool (another simple task) or the tuner won't be recognised.

WeTek OS Android has an app for tuning in, viewing and (with suitable storage plugged into one of the three USB ports) recording TV channels. WeTek Theater, as it's called, is easy to use but rather basic. There's an EPG, but the

'An excellent media player that rewards those who are prepared to put in a little setup effort'

remote's dearth of buttons means you have to engage/disengage subtitles through setup menus. You're stuck with the default soundtrack, too. An alternative to off-air telly is the WeCloud IPTV portal, which requires registration. This is free, as is the content.

Comfortable with Kodi

Among the Android apps is a basic media player, but WeTek also gives us the well-known Kodi/XBMC. This is excellent – it's slick, responsive, easy to use, highly-configurable, web-controllable, deals with local and networked storage, and will play just about anything. But there's a caveat. Running under WeTek OS Android, the output of Kodi is fixed at 720p – even if you're outputting to your display at 1080p. Watch SD video (e.g. DVD), and it's essentially being upscaled twice. Full HD material, meanwhile, is downsampled and then upscaled again. Pictures are thus softer than they should be.

A problem? Not necessarily, thanks to a key advantage of the Play concept and design. The microSD card on the side can be used for playback of multimedia files. But it can also be used to load alternative operating systems. Unplug the unit, pop in a pre-loaded card and restart it. It's a simple as that. The media player adopts a different 'personality' – a bit like your PC being able to boot into Windows or the open-source Linux alternative. Here, though, everything's open-source.

A number of these WeTek Play-compatible operating systems are freely available via dedicated forums, as is the tool needed to turn the image files into bootable microSD cards. One, OpenELEC, is a version of Kodi that suffers from none of the WeTek firmware limitations. It can play Full HD

video natively – and it will also automatically change video refresh rates to match that of the source. Multichannel audio bitstreams (standard and hi-res formats) can be sent to your receiver for decoding via HDMI. Video from SD and HD sources is excellent with filigree detailing, accurate greyscale and convincing colour.

Although OpenELEC makes some concessions to broadcast TV, albeit with a lot of configuration, tuner users are better-served by the OpenATV image (despite it being, at this stage, rather crash-prone). OpenATV is based on software known as Enigma 2 – a highly-specialised implementation of Linux. It's the latest version of a sophisticated system that was originally designed to run on a rather expensive series of enthusiast-grade digital receivers known as Dreamboxes. Once again, the system offers enormous flexibility (you can, for example, record to networked storage – from where it can be accessible to all of your home's media devices). However, Full HD TV pictures were still softer than they should have been. My TV reported a 1080p signal, but BBC One HD looked distinctly 720p. And no fiddling with video settings could change that.

And although OpenATV has a media player, it's nowhere as slick as Kodi. It's also difficult to drive without the £15 Enigma remote add-on, which has a lot more buttons (including the crucial fasttext coloured keys). However, a remote control emulation is available via OpenATV's web interface – so you can use your Smart device as a remote at a pinch.

That's the joy of the WeTek Play – a little effort, and most limitations are circumvented. You'll be rewarded with future-proofing and a lot of fun, as well as an excellent media player. Splash out an extra £20, and there's the potential of off-air HDTV with PVR functionality thrown into the bargain, too ■



The Play can be fitted with DVB-S or DVB-T tuners

ON THE MENU



→ The bundled handset can be used in an AirMouse mode, which makes control relatively slick

SPECIFICATIONS

AUDIO FORMAT SUPPORT: Software dependent (includes MP3, WAV, FLAC up to 7.1, 192kHz/24-bit via HDMI)

VIDEO FORMAT SUPPORT: Software dependent (includes MKV; MP4, AVI; DivX; Xvid; .ts)

CONNECTIONS: HDMI; Ethernet; 3 x USB; 3.5mm composite video/stereo audio; optical digital out; microSD card slot

DIMENSIONS: 180(w) x 36(h) x 125(d)mm

WEIGHT: 900g

FEATURES: 1GB RAM; 4GB flash storage; 1.5GHz dual-core AMLogic CPU; Mali MP400 dual-core GPU; optional plug-and-play tuners; 'WeTek OS Android' based around Jellybean 4.2.2 (pre-installed apps include WeTek Theater for TV; Chrome web-browser, Skype, Google Play Store; MX Player and YouTube); can reprogram box's firmware with new firmware or load it via microSD cards; IPTV support (via WeCloud portal); Bluetooth 4.0; 802.11b/g/n Wi-Fi; serial debug cable supplied; RF remote with 'motion' mouse; optional remote optimised for Enigma-type firmwares

HCC VERDICT

WeTek Play

→ From £95 approx → www.valueav.co.uk
→ Tel: 020 3290 2773

HIGHS: Fantastically flexible; fine AV performance, if configured properly; Kodi operating system; third-party support; Chrome browser

LOWS: Would have preferred a standard-sized SD slot; some bugs – but they're usually fixed

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



Modern machine with an old-school attitude

The RX-A550 offers every connection needed for the 21st century home entertainment buff, yet at the same time carries only five channels of amplification. **Mark Craven** is happily confused

AV INFO

PRODUCT:
5.1-channel
networked AVR

POSITION:
Yamaha's most
affordable
'Aventage' model

PEERS:
Pioneer VSX-930;
Denon AVR-
X2200W

THE AV RECEIVER market is in a bit of turmoil at the moment. The big players (and Yamaha is perhaps the biggest) are revamping product lines to cater for a disparate range of new (ish) technologies, including the Dolby Atmos and DTS:X sound formats, multiroom audio, hi-res streaming and 4K video (with HDCP 2.2 copy protection casting its shadow). A state-of-the-art AVR now looks a lot different to one only 18 months old.

The RX-A550 isn't state-of-the-art, though, and I expect Yamaha would happily admit that. By only offering a five-channel amplifier stage and ignoring both Atmos and DTS:X, it's a receiver with a curiously entry-level bent. In a specs race based on potential speaker layouts alone, the RX-A550 is a £550 contender in a field of £200 rivals.

So why the price bump? Well, in all other regards, this a cutting-edge component. For instance, it's the first outing from Yamaha's 2015 lineup, and as such is part of its new

MusicCast multiroom audio system, which also includes speakers, soundbars, hi-fi separates and more.

On top of that, connectivity here is on the mid-priced money, with HDCP 2.2 covered by one of the six rear HDMI inputs, and 4K/60p passthrough also onboard. There's only one HDMI output, though.

Streamers can make use of Bluetooth and Wi-Fi, and without a dongle in sight. USB hookup is another option for musos. Hi-res file support includes FLAC, ALAC, WAV and DSD, low-res sources can be given a polish by Yamaha's Compressed Music Enhancer, and Spotify Connect is present.

In addition to these feature niceties, the RX-A550 hopes to charm with its design and construction. As the 'A' in the model name denotes, this amp is part of Yamaha's Aventure line, meaning it shares heritage with the company's flagship models. The most obvious physical indicator of its Aventure

status (excluding the logo on the front panel) is its fifth foot, protruding centrally from its underbelly and claiming to limit vibrations from the internal transformer, transistors and heat sinks. And there's more to Aventure than this bonus boot – Yamaha says that 'every factor' that affects sound quality, including materials selection and tuning, is assessed with regards to premium audio quality.

Enough grunt for Godzilla

So, how does the RX-A550 sound? Rather classy. While not blessed with huge power reserves (the claimed headline figure of 115W-per-channel is a single-channel, 1kHz, 6-ohm measurement), the Yamaha uses its grunt well, serving up multichannel soundfields with pleasing dynamics.

Auditioned with a Monitor Audio MASS sub/sat package, my go-to M.U.T.O. bridge sequence in *Godzilla* (Blu-ray) is dramatic and not a little scary. The Yamaha revels in

'For 5.1 stalwarts looking for an upgrade, this Aventure receiver makes a lot of sense – and sounds good'

the tense build-up – the train horn receding into the distance, the in-ear microphone chatter – before exploding into life as the M.U.T.O. appears on the scene with earth-shaking footsteps. Its organic roars drift slowly around the soundfield, locking into the left-hand channel before it waddles into the darkness. With the woofer's crossover reset at 100Hz (the amp's YPAO auto setup pegged it at 60Hz), this bass-heavy sequence packs a cinematic punch.

And what the RX-A550 lacks in speaker layout possibilities, it makes up for with its assured delivery. Compared to a similarly-priced but Atmos-capable and 7.1-channel Pioneer VSX-930, there's a more natural quality to the sound. While the Pioneer is adept at effects placement, it does so a bit

ruthlessly – Yamaha's Aventure model seems more relaxed in attitude. As such, it's involving to listen to, drawing you into the action with spacious, light-footed soundstaging. That's not to say audio pans and localised effects aren't accomplished. In *Godzilla*'s Golden Gate Bridge scene, drops of rain patter on the schoolbus windows and rockets arc through the speaker layout, while in *Fast & Furious 7*'s HyperSport jump set-piece, the supercar flies across the L/C/R channels.

The RX-A550 comes complete with Yamaha's familiar DSP modes, including the likes of The Roxy Theatre or Hall in Vienna. Personally I give these a wide berth, employing Straight mode for movies, 5-channel stereo for casual music playback, the circuit-shortening Direct mode for hi-fi japes and the button marked 'Bass' for occasional instant LF gratification. The receiver makes a good fist of CDs and streamed audio; Mariah Carey's vocals in *Fantasy* (44kHz/16-bit WAV) perhaps lack a bit of presence, but this poppy classic still sounds infectiously upbeat and well-timed.

The beauty of the RX-A550's pared-back amp stage is that setup is an absolute doddle. Marry your five speakers and sub to the speaker terminals/preout and away you go. Yamaha's menu system remains unattractive, though (including its media playing interface), and I can't be the only person irked when there's no hard-copy manual in the box. You get a quick setup guide – probably useful for novices – but detailed instructions are housed on a CD-ROM.

Targeted technology

So who might be the buyer of the RX-A550? Well, no one with half an eye on an extended soundstage – object-based or otherwise – will give it more than a cursory glance. Running a 7.1 system already? This isn't the amp you're looking for. Destined for DTS:X? Move on.

But what about 5.1 stalwarts casting around for a new power-pusher to replace their HDMI v1.4 model? This is where the entry-level Aventure makes sense. Features such as Wi-Fi, Bluetooth, HDMI 2.0/ HDCP 2.2 and multiroom won't be present on many of the AVRs serving time in UK home cinemas. The RX-A550 offers an obvious upgrade path – and a nice-sounding one too ■

Only five amplifier channels = tidy back panel



ON THE MENU



→ The Yamaha's homescreen utilises basic text menus and practically ignores graphical flourishes altogether. Some settings can be overlaid to peruse while watching content. As always, the app (pictured) is more user-friendly, but employing a phone/tablet for system control isn't everyone's cup of tea

SPECIFICATIONS

DOLBY ATMOS: No. Dolby TrueHD

DTS:X: No. DTS-HD MA

THX: No

MULTICHANNEL INPUT: No

MULTICHANNEL OUTPUT (CLAIMED):

5 x 115W (6 ohms, single channel, 1kHz)

MULTIROOM: No

AV INPUTS: Yes. 3 x digital audio (1 x optical and 2 x coaxial); 4 x analogue stereo

HDMI: Yes. 6 x inputs; 1 x output (v2.0)

VIDEO UPSCALING: Yes. To 4K

COMPONENT VIDEO: Yes. 2 x inputs; 1 x output

DIMENSIONS: 435(w) x 161(h) x 327(d)mm

WEIGHT: 8.1kg

ALSO FEATURING: Aventure design; YPAO speaker calibration/EQ; subwoofer preout; HDCP 2.2 support; built-in Wi-Fi; built-in Bluetooth; FM/AM tuner; Ethernet, AirPlay; Spotify Connect; USB input; 192kHz/24-bit DACs for all channels; Compressed Music Enhancer; Cinema DSP; Adaptive Dynamic Range Control

HCC VERDICT

Yamaha RX-A550

→ £550 approx → uk.yamaha.com

→ Tel: 0844 811 1116

HIGHS: Accomplished multichannel delivery;

HDCP 2.2/HDMI 2.0; built-in Wi-Fi and

Bluetooth; simple setup

LOWS: Only a 5.1 design and similar options are more affordable; basic user interface

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

No compromise Atmos

Thanks to KEF's remarkable Uni-Q drivers, the R50 Series Atmos module is the upfiring speaker you've been waiting for, says **Steve May**



SPECIFICATIONS

DRIVE UNITS: Uni-Q driver array – 1in vented aluminium dome tweeter; 5in mid/bass aluminium driver
ENCLOSURE: Sealed
FREQUENCY RESPONSE: 105Hz–18.5kHz
SENSITIVITY: 85dB
POWER HANDLING: 25–100W
DIMENSIONS: 174(w) x 180(h) x 259(d)mm
WEIGHT: 4.5kg

DOLBY-ENABLED SPEAKERS ARE

proving surprisingly effective at delivering the height channel within a Dolby Atmos sound system. Designed to reflect sound off flat ceilings, they're not only easier to install than in-ceiling architectural speakers but create an authentic ambiance in a smaller room that's difficult to replicate with direct alternatives.

The catch is that many Dolby upfiring speakers are often only truly effective when placed in close proximity to the seating area – which can lead to some rather awkward placement issues. KEF aims to correct that with its R50 module, the latest addition to its high-end (and extremely glossy) R Series line.

The R50 utilises the brand's trademark Uni-Q point source driver array. A 1in aluminium tweeter and 'tangerine waveguide' is positioned at the centre of a rigid 5in mid/bass unit, encircled by a distinctive surround to minimise distortion.

To audition a pair of R50s, I shipped in a full complement of R Series speakers to create a homogenous 5.1.2 Atmos array. The setup

used a pair of R500 towers, R200c centre, two R100 bookshelves and the compact R400b subwoofer. This assemblage proves handsome in the extreme.

The R50s plonk exactly onto the front-facing floorstanders, but are also a perfect match

with the brand's bookshelf models. They don't lock on though, just perch.

The R50 is beautifully finished, sporting a piano gloss lacquer offset by contrasting silver drivers. Aesthetically, the enclosure looks gorgeous. While it's tempting to leave the supplied cloth grille in the box, projector owners should note that the metallic drivers actually reflect the light from any front-facing PJ. This glinting could prove a distraction.

The full Atmos experience

Overall performance fittingly shines. The R50 is properly full-range, dropping low yet capable of crisp highs. Given that pretty much any object can be panned into the Atmos channel, it's comforting knowing the R50 has the chops to respond – be it a sharp, dynamic report in *American Sniper*, or rousing, symphonic score in *Jupiter Ascending*.

What I found truly remarkable, though, was the reach of the Atmos channel. Typically, rival Dolby boxes tend to attenuate at distance. However, I could sit the R50s on the front speakers a good 3.5m away from my couch and still enjoy an excellent sense of height. The overall soundstage was spacious (the Dolby Atmos demo clip *Amaze* offers grin-inducing insect effects) and naturalistic.

The KEF R50 is easily the best sounding Dolby Atmos speaker I've heard, both in terms of 3D clarity and effective dispersion. The catch, of course, is that you'll probably want R Series speakers to match... and perhaps four R50s would sound even better than two... ■

AV INFO

PRODUCT: Dolby-enabled Uni-Q speakers

POSITION: KEF's first dedicated Dolby Atmos speakers

PEERS: Definitive Technology A60; Onkyo SKH-410

HCC VERDICT

KEF R50

→ £600 approx (pair) → www.kef.com
 → Tel: 01622 672 261

HIGHS: Spacious, full-range audio performance; extended Atmos reach; gorgeous design and finish

LOWS: Uni-Q driver (ironically) light-reflective; speakers perch rather than lock atop matching R Series speakers

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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LONG-TERM TEST

JVC DLA-X30

TIME ON TEST

3.5 years

REVIEWER

Richard Stevenson

AV INFO

PRODUCT:
Full HD/3D D-ILA projector

POSITION:
JVC's junior model launched late 2011

PEERS:
Panasonic PT-AT5000E;
Sony VPL-HW30

JVC WAS ONE of the first makers to dive into the 3D projector world, and by late 2011 the DLA X30 represented its second-generation, middle-market model with a price tag just shy of £3,000. I was very happy with my Marantz VP12 HD projector at the time but my interest in the new 3D format – and the fact that the VP12's fan was beginning to sound like a leaf blower – paved the way for an X30.

Nearly four years on and it's not 4K, nor HDR-enabled, but if it's bigscreen Full HD entertainment you are after, the X30 was a star of its day and could make a decent second-hand purchase. Not that you'll find a retailer stocking any; you'll be looking at auction sites. A hunt on eBay shows prices below £1,000 for a low-hours, mint-condition sample, and replacement bulbs can be had for around £200. Might the X30 be the low-cost panacea to your bigscreen viewing needs?

What's good about it?

Firstly, it's still going strong. My X30 (in black – although a white-finish model was also

released) has over 1,000 hours on its first bulb, yet the fan is quiet as a mouse and the standard HD picture remains stunning.

Key to the JVC's image chops and its favourable review back in *HCC* #214 is the company's D-ILA tech, a variant of LCoS (Liquid Crystal on Silicon) that, in conjunction with a wire grid polariser, crafts a remarkably high native contrast ratio – and one that LCD rivals (one at the time of launch was Panasonic's PT-AT5000E) can't get close to. Contrast here is rated at 50,000:1, along with a brightness of 1,300 Lumens.

To this day my X30 delivers a cracking projected image. That imperious contrast and black level performance lends images a superb sense of depth and dynamism, with vivid yet natural colour with hi-def material from both Blu-ray and Sky+HD. Skin tones do look like skin (..and the substituted Marantz projector was a bit jaundiced in this respect) and the JVC's natural balance goes a long way to improving the suspension of disbelief for movies. This model has seen me



The remote is generally simple to use and backlit for dark rooms

through hundreds of discs and – in 2D mode – I've never been unhappy.

The X30's lens is a bit of a star feature. It is a large, quality-glass unit with zoom, focus and both horizontal and vertical lens shift available from the remote. With the lens set 3.2m from the screen the absolute maximum diagonal

'To this day my JVC X30 delivers a cracking picture with imperious contrast and black level performance'

picture size in its native 16:9 ratio is about 2.8m. That makes it on the longer side of lens throw, so don't expect a wall-filling display in a small room.

Straight out of the box the standard picture modes won't leave you disappointed, but some tweaking of the X30's picture settings can improve matters even more. The Clear Motion Drive, which works to increase motion resolution, is worth some time experimenting with, as is the iris control. This dramatically reduces brightness and increases contrast for pitch-black viewing rooms. If your room is a proper cave, you'll also appreciate that the basic remote control lights up with any button press.

The projector's twin HDMI inputs will come in handy for some, although in my system I've rarely had recourse to double up.

What's not so good about it?

The JVC's onscreen menus are not exactly a work of art and are devoid of any onscreen explanation of each feature's effect. The telephone directory-sized instruction manual isn't much better either. But a suck-it-and-see attitude to picture adjustment

isn't always a bad thing. Note that, unlike higher-priced models, the X30 lacks THX and ISF endorsement.

The X30 was not the simple swap-over solution for 3D I had imagined. It was twice as big as the outgoing Marantz, much heavier and fitted with an enormous non-standard bracket mounting pattern. Search as I might, a simple 'hang on the ceiling' bracket was not available. My solution was mounting the X30 to a large plywood carrier and then mounting the carrier to a standard ceiling projector bracket. In an effort to get decent screws into a joist the bracket had to be moved forward, leaving some holes in the ceiling, and necessitated removing the floorboards upstairs. By the time it was fitted the cinema room looked like a scene from *DIY SOS*... However, I am pleased to report that the X30 has stayed put through some serious foundation-shaking LFE moments.

So the size and weight of this PJ should be a consideration if you're used to a smaller model, and 3D is a concern, too. While the X30's 2D performance is superb, I have struggled with 3D since day one. The active glasses require an IR sync-sender to be positioned some 2m in front of the viewer, which required more DIY shenanigans and conduit across my room. Supplied with only two sets of glasses as standard you won't get the family around a 3D movie without buying more and each set is USB rechargeable. While the charge does last a fair time, give it a month of not watching 3D and 'flat glasses' will become the bugbear of your curtain-up viewing times.

Moreover, the 3D performance is middling. The frame-switching reduces brightness dramatically, which the X30 tries to counter by massively upping brightness in 3D mode. This in turn kills contrast and eradicates colour subtlety. The glasses further reduce brightness. For 3D viewing, pitch-black rooms are a must and even then you can wave goodbye to the JVC's sumptuous shadow detail.

Crosstalk is not too bad for a projector from an era when this issue could really undermine 3D performance, but the X30 does have significant issues with depth of field parallax errors, particularly if you are going big on screen size. You have adjustment from the remote over depth and parallax merge point but in my experience you can only have double-image-free objects in the foreground, midground or background – not all at once.

Should I buy it?

Possibly, if you can grab one in good nick – its stellar 2D HD performance still can't be sniffed at. However, in these times of format flux, those with high-end aspirations will be looking at a 4K Sony or even one of JVC's eShift models – and these are available second-hand too. Furthermore, there are brand-new, more affordable options (albeit LCD and DLP-based) that are easier to accommodate ■

SPECIFICATIONS

3D: Yes. Active, with two pairs of glasses and external transmitter supplied

ULTRA HD: No. 1,920 x 1,080

CONNECTIONS: 2 x v1.4 HDMI; component video input; Ethernet; 12V trigger; composite video input; RS-232C port; 3D sync port for provided transmitter

BRIGHTNESS (CLAIMED): 1,300 Lumens

CONTRAST (CLAIMED): 50,000:1 native

DIMENSIONS: 455(w) x 179(h) x 472(d)mm

WEIGHT: 14.9kg

FEATURES: Backlit remote; 2D-to-3D conversion; x2 optical zoom; custom gamma control; +/-80% vertical and +/-34% horizontal lens-shift (motorised); 3,000-hour lamp life in Normal mode; 220W UHP lamp; 20dB claimed operating noise in Normal mode; Lens Memory function; picture presets



RS232 and 12V trigger options suit system builders



HCC VERDICT

JVC DLA-X30

→Varies (second-hand) → www.jvc.co.uk
→ Tel: 0845 310 8000

HIGHS: Stunning 2D picture quality; flexible setup; quiet in operation; twin HDMI inputs

LOWS: Some crosstalk with 3D material; lacks the most in-depth calibration tools; sizable chassis; no 4K or HDMI 2.0 compatibility

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

WIN

AN EVOLVE AUDIO SB-2501 BLUETOOTH SOUNDBAR

THIS ISSUE WE'VE joined forces with UK sonic specialist Evolve Audio to give away its SB-2501 soundbar that aims to bring improved audio to your flatscreen TV with style and simplicity. And with three of them up for grabs, you've got an even greater chance of winning!

Welcome to the party

The SB-2501 typically retails for £200 and is the first product to be launched by Evolve Audio, a company founded in 2013 with the goal of delivering performance-driven home entertainment kit. To this end it packs six drivers into its sleek enclosure, backed up by a wireless subwoofer with a 6.5in bass driver. UniPhase frequency-separation technology then optimises the SB-2501's sound – performance with both music and movies is blessed with a meaty bass output and crisp effects delivery.

Operating the soundbar is made easy via the supplied remote control. Music, Movie, News and Sport presets, plus bass adjustment, put you in control, and the Definitive Surround Sound (DSS) mode works to add depth and immersion to stereo sources. Onboard connectivity comprises optical digital audio, phono

audio and 3.5mm jacks, plus Bluetooth. The latter allows music streaming from your Smart device at apt-X quality.

Styling is living-room friendly; the SB-2501 is crafted from brushed, black aluminium with durable plastic side panels and removable cloth grilles. Measuring only 49mm high and 67mm deep, it's easily accommodated on your TV stand and won't look out of place next to today's super-slim TVs.

Completing the Evolve Audio SB-2501 package are the bundled EVO-1 headphones. These connect wirelessly and automatically to the soundbar, allowing you to continue your marathon movie night without disturbing anyone else in the house. Offering a 12m line-of-sight transmission and 8-10 hours playback (they charge via USB), the EVO-1s utilise two 40mm ATOM drivers with high-grade neodymium magnets. The cans are also suited to those who are hard of hearing, as both they and the soundbar can be used simultaneously at different volume levels.

So, if you want win one of the three Evolve Audio SB-2501 soundbars we're giving away, just enter our competition now. And good luck! ■

**WIN!
WIN! WIN!
Three stylish
soundbars up
for grabs!**

For more info on the Evolve Audio SB-2501, visit www.evolveaudio.co.uk



'With both music and movies
Evolve Audio's SB-2501 is
blessed with a meaty bass
output and crisp detailing'



The SB-2501 is
supplied with wireless
EVO-1 headphones



Competition rules

1. The first entries drawn at random will win the prizes. **2.** Only one entry per person/household; multiple entries will be discarded. **3.** Entrants from the UK only. **4.** Employees of MyTimeMedia Ltd and companies supplying competition prizes are not eligible to enter this competition. **5.** Please ensure your personal details are correct, as they will be used to contact you if you win. **6.** No alternatives, cash or otherwise, will be offered to the winner as prizes. **7.** The editor's decision is final. **8.** Comp winners' info available upon request. **9.** The closing date for entries is October 30, 2015.

Be in with a chance of winning an Evolve Audio SB-2501 soundbar by answering the following film-related question:

Q: Who directed the 2001 sci-fi comedy *Evolution*?

- A)** John Landis
- B)** Ivan Reitman
- C)** Judd Apatow

HOW TO ENTER:

Simply email your answer (either A, B or C) to competitions@homecinemachoice.com with the subject line 'Evolve'. You must include your name, address and contact telephone number.

The closing date for this competition is October 30, 2015. Please read the terms and conditions (left) before sending in your entry.

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DIGITAL COPY

This issue **Mark Craven** is bothered by an overburdened disc shelf, an absence of HDR hardware in his setup and the thought of watching *Alien* on a desert island

IMAGINE THAT YOU'VE been sent to a desert island. Imagine that you knew this was coming, and were told you could take ten Blu-rays with you. What would you pack in your waterproof bag?

It's quite tricky isn't it? Your first question is 'What are my ten favourite films?' And that's hard enough to answer. But then you begin to wonder if even you'd like to watch your ten favourite films over and over again, and maybe there are more suitable options that would fit in better with the scenario. Tom Hanks' *Castaway*, for instance.

I ask this (and the answer for me is *Jaws*, *Crank*, *The Hudsucker Proxy*, *Alien*, *The Burbs*, *An American Werewolf in London*, *48 Hrs*, *Southern Comfort*, *Predator 2* and *Kelly's Heroes*, just so you know) because recently I've been looking at my disc collection and wondering if I could trim it back a bit. Firstly, it takes up a fair bit of space. Secondly, as investments go, it's not a good 'un – spending money on Blu-rays that much of the time only get one or two spins is the sort of habit that would drive my portfolio manager mad, if I had one. Not to mention the unwatched titles. **My DVD copy of *rom-com Down With Love* has actually never seen the inside of a disc-spinner, and it never will.**

And there's another reason I want to become more circumspect about the discs I splash out on, and that's Ultra HD Blu-ray.

Hi-def of our time

New formats bring out the worst in me. Previously, I've rushed to stores, waved my plastic around like Neville Chamberlain at Heston Aerodrome, and returned home with more discs to find space for. Some purchases are upgrades and entirely necessary – give me a UHD version of *Jaws* and

I'll bite your hand off. Others are more dubious. The lure of the new and better-specced can have me leaving my critical faculties at the door. This is why many home cinema enthusiasts own the likes of *Jack The Giant Slayer* and *Alice in Wonderland* on 3D Blu-ray – because of the 3D!

With Ultra HD Blu-ray, I've vowed to be more restrained. And there are numerous reasons for this. Firstly, the initial wave of discs promised by 20th Century Fox Home Entertainment (*Exodus: Gods & Kings*, *Kingsman: The Secret Service*, *Fantastic Four*, *X-Men: Days of Future Past*, *Life of Pi*, *The Maze Runner* and *Wild*) don't exactly float my boat. It's not as bad a lineup as Full HD Blu-ray rocked up with, but – considering Fox's back-catalogue includes the likes of *Alien*, *Die Hard* and *The French Connection* – I was hoping for more.

Secondly, there's the price issue. Undoubtedly, UHD Blu-ray will command some sort of premium over regular BDs, although retail figures have yet to be announced. There is, I must add, nothing wrong with that – studios, authoring houses and sellers all need to make money, or else the format will catch a cold before it's had time to even don its woolly hat. But it will mean I'll be choosing purchases carefully.

Lastly, I have a problem with HDR – literally, in that my 4K TV isn't actually HDR-ready. Sure, I'll be able to view UHD BDs, but not at the performance level that has quickly become the format's USP. As I was told by Victor Matsuda of the Blu-ray Disc Association during IFA: 'You're about to hear a lot more about HDR...'

Actually, I should probably stop buying any discs whatsoever so I can afford a new TV. And a UHD player. I'll stick with my top ten in the meantime ■

What would be your ten desert island Blu-rays?
Let us know: email letters@homecinemachoice.com

Mark Craven is aware that he's probably the only person on the planet who thinks *Predator 2* is a better movie than *Predator* – and doesn't care





FILM FANATIC

Anton van Beek pays tribute to the late Wes Craven, father of Freddy Krueger and master of modern American horror cinema...

THE PASSING OF one of your movie idols typically leads to sadness, quickly followed by fond memory. These were my feelings when horror legend Wes Craven died at the end of August, aged 76. And even though I may never have counted any of the flicks he wrote or directed among my absolute favourites, looking back at his career served to remind me how much I've enjoyed the nightmarish tales he put on screen.

Like most kids growing up in the 1980s, my first encounter with Craven came via the shelves of my local video rental store. Long-term readers will know the drill: on most Saturday mornings I could be found there, mesmerized by the lurid cover art adorning the selection of horror films, trying to figure out which of them to rent to watch the following morning (as a small village store it was closed on Sundays, so that a tape rented on Saturday didn't have to be returned until Monday. Excellent!).

It was here that I came across the VHS release of Craven's most famous film, *A Nightmare on Elm Street*. With its stunning painted cover by the insanely talented Graham Humphreys (who also created the iconic quad posters and video covers for the likes of *The Evil Dead*, *The Return of the Living Dead*, *Basket Case*, *Creepers* and *Kindred* during the decade) the video proved impossible for an eleven-year-old film geek to ignore.

Yet even that eye-catching piece of art couldn't prepare me fully for the film itself. Expecting little more than a typical slasher, ***A Nightmare on Elm Street* knocked me off my impressionable little feet with its ingeniously demented set-up, imaginative chills and wry humour.** Over the following months I think I ended up renting it out four more times.

As quickly as the name Freddy Krueger was etched in my brain, so was that of his creator, Wes Craven, and over the years that followed I watched as many of his films as I could get my hands on. I became impressed by his ability to avoid the pitfalls that befell so many of his '70s contemporaries. While the careers of John Carpenter, Tobe Hooper and Dario Argento started to flounder, Craven continued to deliver genre gems like the socio-politically-charged *The People Under the Stairs* (1991) and the marvellously meta *Wes Craven's New Nightmare* (1994).

The horror of *The Hills Have Eyes Part II*

That's not to say that everything Craven touched turned to gold. The less said about 1985's *The Hills Have Eyes Part II* the better, and don't get me started on the string of duffers released under the 'Wes Craven Presents' banner (the nadir being a 1998 remake of *Carnival of Souls*). But for the most part, even those films of his that didn't quite live up to expectations had something to recommend them, be it the goofy comic book fun of 1982's *Swamp Thing* or Mitch Pileggi's gonzo turn as body-hopping serial killer Horace Pinker in 1989's *Nightmare on Elm Street* do-over *Shocker*.

And then there was *Scream*. This 1996 blockbuster gave Craven's career a second wind, and revitalised horror at the same time; a sassy slasher that rescued the genre from the straight-to-video doldrums and reminded Hollywood that terrifying people could still be a smart way to get them into theatres.

Wes Craven has left us, but his cinematic legacy will live on in my nightmares. In a good way ■

*Have you got a favourite Wes Craven film?
Let us know: email letters@homecinemachoice.com*

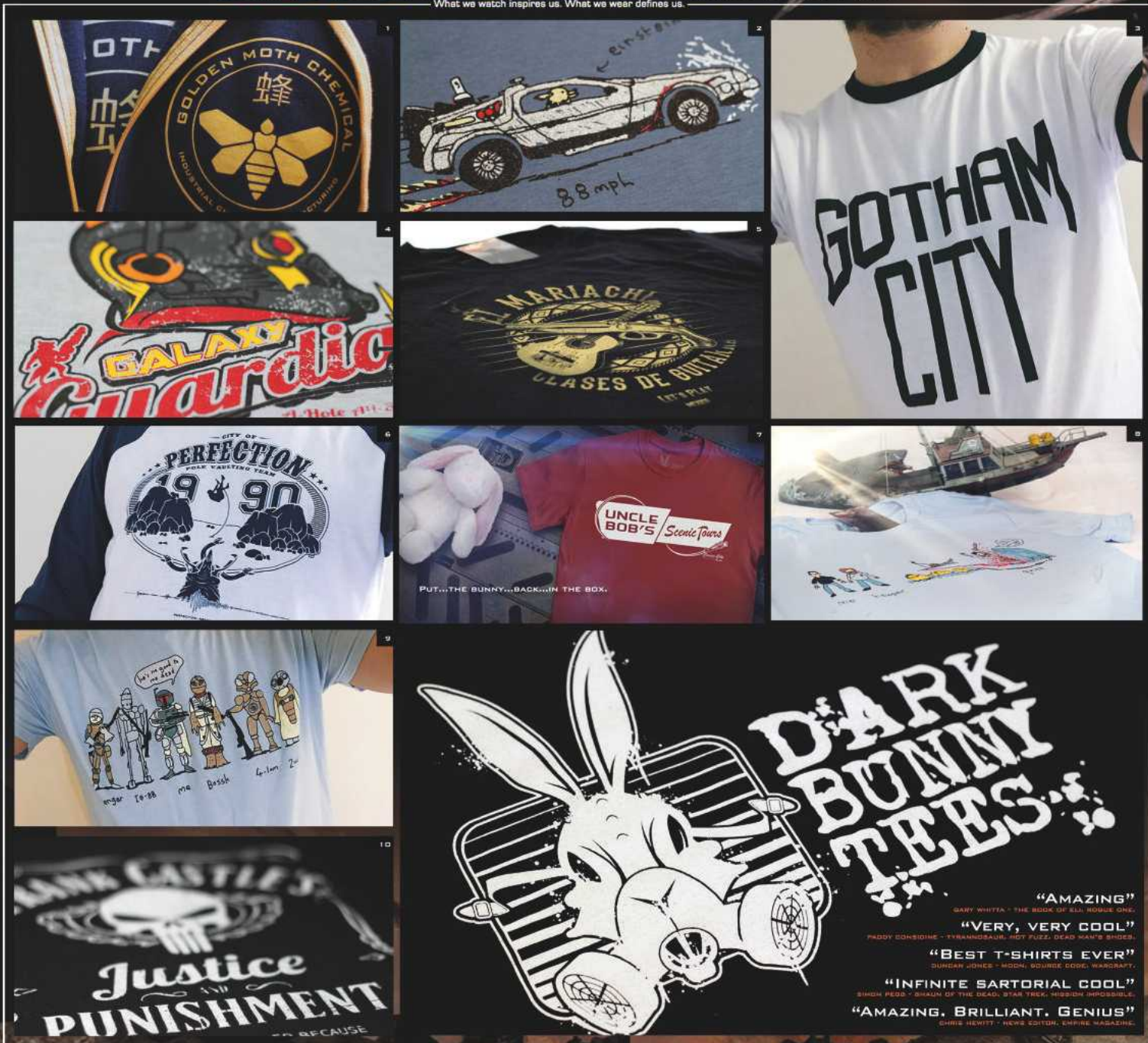
Anton van Beek chose to mark Wes Craven's passing with a *Nightmare on Elm Street* marathon. So, no change from any other weekend really...





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PICTURE THIS

Calibrator **Vincent Teoh** is excited by the picture quality prowess of OLED TV technology, but warns that there are potential roadblocks ahead

VIDEO ENTHUSIASTS ARE always on the lookout for a display technology that's capable of delivering best-in-class picture quality, and OLED seems to be the ticket now that plasma is no more. And despite only carrying an extra character over the LED acronym, the two display technologies couldn't be more different.

Like CRTs and plasmas before it, OLED is an emissive technology, where each individual pixel can be switched on and off independently from one another. On the other hand, LED is a variant of LCD technology where the panel is illuminated by an LED backlight, and is transmissive in nature, meaning that in order to generate blacks, its light output has to be blocked (although more advanced LED TVs can switch off their LEDs in zones or clusters).

As you can imagine, by being able to turn off each individual pixel, OLED TVs hold a sizeable advantage over their LED counterparts in terms of black level reproduction. Not only can pure blacks be achieved, colours also flourish and 'pop' more due to the presence of an inky canvas that doesn't wash out the vibrancy of the image. **It's no wonder superlatives have been lavished on the image produced by OLED.**

But there are potential issues for the fledgling display technology. The first concerns OLED's compatibility with HDR (High Dynamic Range), content, which in my opinion is the most exciting parameter in the next phase of UHD development.

A key feature of an HDR-capable screen is that it should be able to reach high levels of brightness to not only inject true-to-life realism into spectacular highlights, but also expand the dynamic range to allow for accurate delineation of the subtle gradations from black to white. While HDR standards haven't been finalised, a figure of 1,000

Nits for peak luminance is often bandied about, which may trip up existing 4K OLED TVs.

Like plasmas before them, OLED TVs contain integrated ABL (Automatic Brightness Limiter) circuitry to prevent excessive heat build-up and burn-through of organic material, which works by dimming the screen once the APL (Average Picture Level) exceeds a certain threshold. While useful in protecting the components and extending the lifespan of the panel, this always-on handbrake mechanism also stops OLEDs from matching the high brightness output of LED LCDs.

Of course, an OLED panel can be driven harder, and its ABL algorithm tweaked to achieve 1,000 Nits of peak brightness, but it begs the question of how these measures will affect its longevity. With the true lifespan of OLED TVs even for normal viewing still up in the air owing to how new the display technology is, increased use and driving of the organic material to satisfy the brightness demands of HDR will surely do OLED's longevity no favours.

One possible solution to coax more light out of OLED panels is to use a true RGB subpixel structure instead of the WRGB layout that's found on every OLED TV on sale these days. LG Electronics, OLED's chief proponent, is also playing down the brightness demands of HDR, explaining that OLED TVs can satisfy HDR's luminance range needs at lower peak brightness because of their absolute blacks.

Don't get me wrong – I'm still excited by OLED TV, and would go so far as to say that it produces the most beautiful image I've seen from a domestic set. But with questions over its HDR compatibility, it may be wise to await further development ■

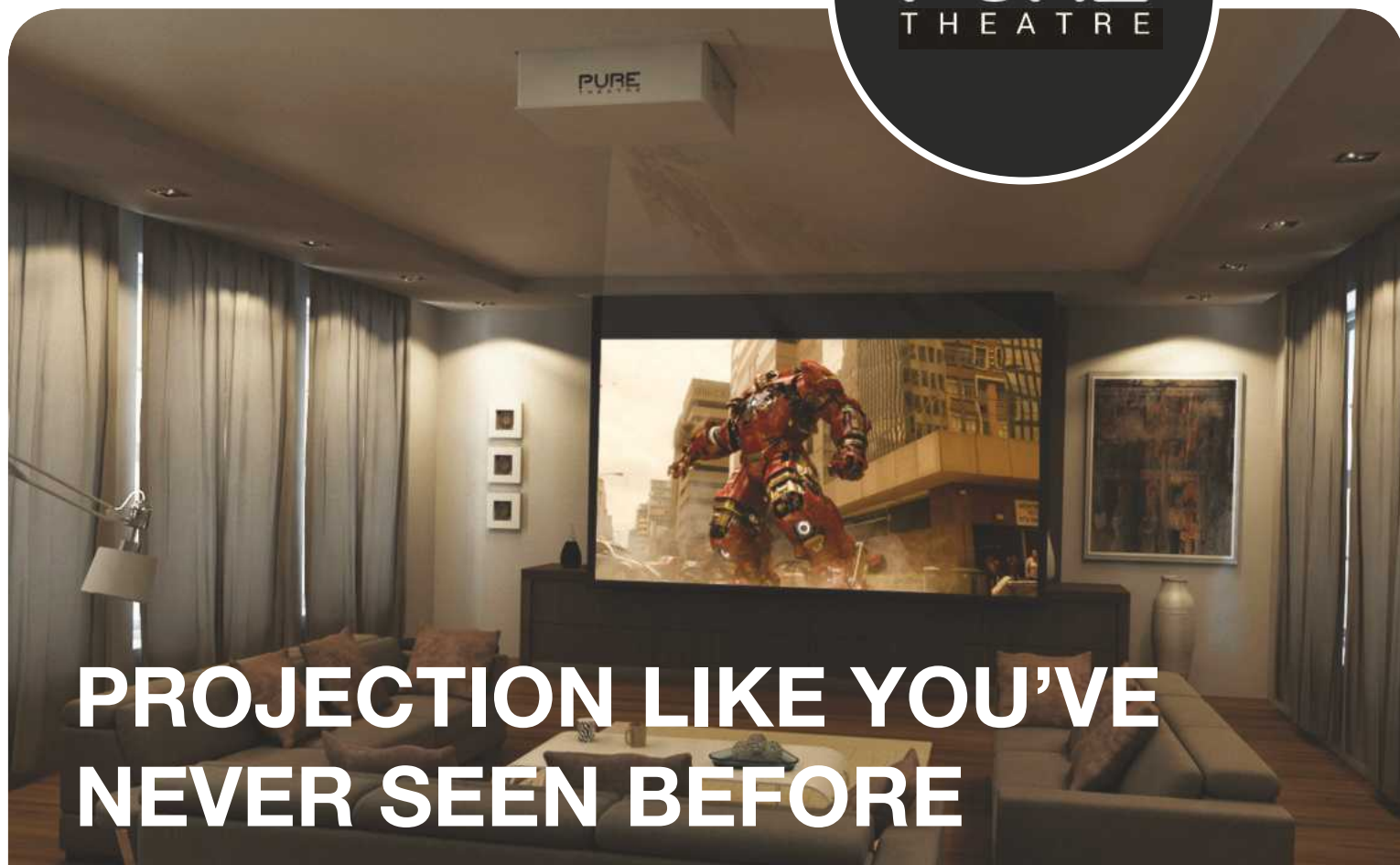
*Are you considering an OLED panel for your next TV?
Let us know: email letters@homecinemachoice.com*

Vincent Teoh has worked as a professional video calibrator for seven years and can remember when OLED TVs were smaller than his current phone



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Feedback

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Why can't I buy a Philips TV?

Two years ago I was in the market for a new television and bought the award-winning Philips 55PFL8008 with the three-sided Ambilight feature. Since then Philips has seemed to have gone into decline where TVs are concerned. It used to be one of the top five television producers in the world, but now you do not see its screens in the major stores or being advertised.

I now am retired and live six months a year in London and six months in Spain and want to upgrade, but cannot seem to be able to buy the 8 or 9 Series 4K televisions in either country.

I understand from Philips it launched new curved 8 Series and four-sided Ambilight 9 Series models last year but no one has stocked them in either country. Is this the reason for no reviews from your magazine?

Is there possibly production problems with TPVision in China? I absolutely love and am totally hooked on Ambilight (I think Philips is aware of the popularity of this tech and it's the reason why it won't sell it to other brands) so I do not want to change for another excellent make. But I cannot and will not buy until your magazine has a review of the latest Philips 4K

models – preferably 8 or 9 Series – plus the fact I cannot find these models to buy in either country.

Are any new models being launched at the IFA expo in Berlin?
John Andersen, via email

Mark Craven replies: Philips has certainly lost a chunk of its market share in the UK over the last decade or so (perhaps Spain as well). Don't assume this is anything to do with the TPVision, buy-out, though. From my conversations with long-term Philips staff, this has been good for the brand in terms of manufacturing scale, etc. Rather, it seems to have

struggled to compete with some brands (think LG and Samsung) when it comes to pricing, and its UK release strategy appears to often involve giving the higher-spec (and higher-priced) models a miss. Subsequently, we haven't reviewed its most recent 9 Series model, simply because it's unavailable over here. A new 9 Series has just been announced at IFA – so we'll have to wait and see if this does make it into UK stores.

Lastly, I completely agree with you when it comes to Ambilight. This is a brilliant – if slightly oddball – technology that I've long been an admirer of. Check

★ STAR LETTER...

Two things I'm worried about: quiet dialogue and Ultra HD Blu-ray!

I've been meaning to write to you on these two issues – bit belated – but never mind.

First up, *Interstellar*: I was very disappointed with *Gravity* when I watched the Blu-ray copy I eventually purchased at a sensible price. Technically it is superb – but the plot! What amuses me is that work colleagues who also have copies rather agreed with me when I shared my thoughts on the movie – especially the ending.

So one colleague lent me *Interstellar* and I rather enjoyed it – it did have a story no matter how unbelievable the conclusion. However, I spent the first hour struggling to hear the dialogue until I switched on the subtitles. I was prompted to dig out your review (*HCC* #247) and read in disbelief your comments under the Audio section: 'And, regardless of reports from cinemagoers, we had no

problem making out the dialogue in the mix.' Makes you wonder, doesn't it?

Secondly, 4K and UHD Blu-ray: I have followed the discussions and rollout of UHD to consumers since it was first mooted many years ago (at the time NHK in Japan decided to bypass it and go straight to 8K). In time I expected to replace my very good early Sony Smart TV with a UHD one. But there is always that business of no suitable native material. I have tried to ignore the scribbles in the national press ignorantly exclaiming the 'demise of Blue-Ray' last year – one even admitting she did not know what a Blu-ray disc was anyway! I have also tried to ignore the fact that a friend connected to the

broadcast industry advised me in June that his company had 'shelved' work on 4K for the time being, which I could not grasp at the time. They were concentrating instead on HDR.

After reading the interview with Joe Kane in the August issue (*HCC* #249) I rather

shelved any aspirations I had to go and buy a UHD TV any time soon. What a mess. I think Joe Public is going to kick this out like it did 3D (and there is no comparison). So my prediction is that whilst UHD Blu-ray arrives later this year, its appeal will be so niche and the cost so considerable that it will die a death. What a shame. Blu-ray was never encouraged in the UK and the likes of ITV don't put their stuff out on it, and Joe Public is just ignorant about it.
Ian King, via email

Mark Craven replies: Regarding *Interstellar*, we really didn't have an issue with the dialogue level, especially as some of it was (apparently...) designed to be 'absorbed' into other elements of the audio mix – director Christopher Nolan has talked about using dialogue as a 'sound effect'. That said, it is not



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Resident Evil: Afterlife
– a 3D showstopper

out our IFA show report (p18) to get a taste of AmbiLux, which is Ambilight on steroids...

Want 3D? Check out the 1950s

Whatever happened to the promised article about 'five years

as pushed forward as many typical Hollywood mixes, so we can see why some people get annoyed about it.

As for UHD Blu-ray, firstly, it will now be early next year before it arrives, rather than pre-Christmas. D'oh. Secondly, will it die a death? I don't think so, but I'm certain it will be a niche format in a way that DVD isn't. The majority of people think DVD is 'good enough' – persuading them otherwise will be tricky and the success of Netflix and Amazon in recent years has created a streaming community whose habits will be hard to break.

Star letter-writer Ian wins a copy of Marvel's blockbuster smash-hit *Avengers: Age of Ultron* on Blu-ray courtesy of Walt Disney Home Entertainment. It's available to buy now on Disney 3D Blu-ray™, Blu-ray™ and DVD.

of 3D, has it failed and if so why?'. Well, I can tell you why: the film studios never kept their promise of what was to come after the promotional campaign. I have most of the demo discs the shops were supplied with and they are all great – especially the LG one – yet no 3D film comes near them for 3D effects. Apart from some exceptions (*Avatar*, for instance) there's been no wow factor.

I have all the old 3D films made in the 1950s and 1960s and they are much better. It's a shame they found a way to do the 3D in post-production because the studios are all lazy and tight and go for the cheapest option. I don't think they were interested from day one. If you want to see real 3D you will have to buy all the old films or the IMAX documentaries.
FC Elliot, via email

Mark Craven replies: The article about five years of 3D will be in our next issue. Promise!

Anton van Beek replies: I agree with you to an extent, FC – I recently wrote in my regular column (*HCC #248*) that modern 3D filmmakers are missing a trick by ignoring dazzling 3D effects. Others, however, have different views on what stereoscopy should be employed for. And I can think of

'wow factor' moments on 3D Blu-ray – going all the way back to the slo-mo water-spattered fight in *Resident Evil: Afterlife*.

Post-production 3D is an interesting topic, of course. It's certainly true that there have been some dismal examples of ret-conned stereoscopy, and a decent rule is to not get too excited (in a visuals sense) by a film that wasn't shot natively in 3D. That said, when James Cameron went back to *Titanic* for a 3D release, he did a pretty good job. Albeit at quite a cost.

Starting a room from scratch

I came across your website whilst looking for inspiration for home cinema rooms and to get a handle on what 'kit' was available.

We are lucky to be building a dedicated home cinema within the basement of our new-build so we can start from scratch. Being 'non-techie' we are a bit blown away by the range of stuff available. What we'd like is a really good-quality system which delivers everything needed without being lured into spending unnecessarily. Any pointers would be great!

Emma Cunningham, via email

Mark Craven replies: Thanks for getting in touch Emma, although not knowing your budget it's

difficult to know where to begin (one person's idea of 'spending unnecessarily' is different to another's...).

In basic kit terms, for your dedicated cinema room you'll want a projector screen and a projector, loudspeakers and an AV receiver (or amplifier/processor) to drive them, plus a Blu-ray player (or other media player) for watching content. And you'll also want some chairs to sit on. In terms of budget, this could set you back anything from around a £1,000 for an entry-level setup to much, much more.

You say your cinema will be in the basement of a new-build home – with that in mind you'll also want to make sure you get the right electrics and lighting installed!

I'd suggest your first port of call if you're after a high-quality setup and want someone else to do the work should be a local AV installer. Use the 'Finder' tool on the website of industry body CEDIA to hunt some down (<http://www.cedia.org/find-a-cedia-professional>) – all should be able to tell you informally what they could do with your budget. And involving technical experts is always a good idea if you are 'non-techie' yourself.

On the other hand, if you're on a tight budget, check out our >

reader's rooms, like the one in this very issue (p90), to see what can be achieved without – for the most part – bringing in the professionals.

This is what annoys me...

What's happened to the cinema experience? I used to manage cinemas and ran checks every performance – the projectionist would make sure the film was in focus, pop into each screen and see everything was up to scratch sonically, and the ushers would even ask people to leave if they were annoying others. This clearly doesn't happen any more.

After recent trips to the cinema I'm starting to believe the best place to see a movie is at home. I pore over reviews before I buy a TV, and if there's a comment like black levels only average, I move on to the next review, but I don't think the multiplexes seem to have the same exacting standards, if any at all.

My (fairly local) Cineworld has an IMAX screen and on my last

two visits the presentation has been below standards. The focus was soft, almost blurred, and the image rather dull. I get that the films aren't 70mm prints any more but still, it doesn't take too long to sharpen the image (my projectionists used to use the text on the BBFC certifications).

Last year I caught *How To Train Your Dragon 2* at the same multiplex, this time in Screen 11, and noticed that the dialogue was all in the left-hand channel (it sounded like a speaker wasn't working). I spoke to the ticket-tearer about it and he said he'd speak to the projectionist, but nothing changed during that screening. Last month I saw *Inside Out* in the same screen and had the same audio problem. When I mentioned it to my friend, he said it was annoying him too, so it's not just me! They clearly hadn't done anything about it.

So I switched back to my local Vue recently for *Fantastic Four*. I was the only one in the screen for that performance – it was a

10:30am showing. They forgot to dim the lights when the movie started. I had to go outside and tell the ticket-tearer on the floor below; they finally dimmed about 20 minutes in. At that point there was a blue haze on the middle of the screen – the reflection of the LED lights on the stairs!

I used to work at the ABC Cinema in Sheffield. It was one of the largest 70mm screens in the UK. We ran *E.T.* in 70mm for months to packed houses. Every screening was a performance. There were three tiers of curtains, all with coloured lights reflecting on them as they drew back to reveal the screen, giving a real sense of spectacle. Our ushers told us immediately if anything was out of place and remained inside the theatre at all times. Nowadays you pay £10-£15 and walk into a cinema that is dead-quiet, to a bare screen. The trailers are run with the lights up and when (or if) the lights go down your the film is out of focus, the sound screwed up, or the picture dark and dull.

A Dolby Cinema (with Dolby Vision and Atmos) sounds like it'd be something to look forward to if we ever get any built in the UK and didn't screw it up. In the meantime I'll wait for a flat (not curved) OLED TV with HDR so I can continue to have a better experience watching movies at home than at the local cinemas.
Ian Caslake, Leeds

Mark Craven replies: Oh no, Ian. Sounds like you've had a bad run! Rest assured that flat OLED HDR is coming – see p20. And does anyone else have cinema horror stories to share? ■

CONTACT US...

Write to HCC, AV Tech Media Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF, or email us at letters@homecinemachoice.com

Please note: we cannot guarantee to print/answer all the letters we receive. Sorry.

Win! Great Blu-rays up for grabs

Just email your answer to Competitions@homecinemachoice.com to be in with a chance



Mad Max: Fury Road

Get ready for the ultimate experience in high-octane action cinema when *Mad: Max Fury Road* hits DVD, Blu-ray and Blu-ray 3D on October 5. To mark the release we've teamed up with Warner Bros. Home Entertainment to give away five copies of the film on Blu-ray.

Question:

Which Australian actor played the part of Max in the original three films?

Answer:

A) Hugh Jackman B) Russell Crowe C) Mel Gibson

Email your answer with '*Mad Max*' as the subject heading – and include your postal address!



San Andreas

Former wrestler Dwayne Johnson stars in this action-packed disaster film that lands on DVD, Blu-ray and Blu-ray 3D on October 12, courtesy of Warner Bros. Home Entertainment.

And we've bagged five *San Andreas* Blu-rays to dish out...

Question:

Which of the following was Dwayne Johnson's ring name as a professional wrestler?

Answer:

A) The Rock B) The Boulder C) The Pebble

Email your answer with '*San Andreas*' as the subject heading – and include your postal address!



The Walking Dead: The Complete Fifth Season

The fantastic fifth season of top-rated horror series *The Walking Dead* makes its Blu-ray and DVD debut on September 28, courtesy of Entertainment One. And to celebrate the release we've got five copies of the Blu-ray boxset for you to win!

Question:

The Walking Dead's Andrew Lincoln shot to fame in which BBC drama series?

Answer:

A) Howard's Way B) Doctor Who C) This Life

Email your answer with '*Walking Dead 5*' as the subject heading – and include your postal address!

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The man with the plan

For his first dedicated AV setup, HCC reader **Karl Murinas** spent his spare time converting his double garage into a cinema room. Now he gives us a guided tour

Welcome to the AV-Holics Hall of Fame! Introduce yourself...

Hi! I'm Karl Murinas, 36, and I'm a qualified quantity surveyor. However, I undertake various roles at work that lead more to design of architectural facades for buildings and design automation. I have a real passion for tech and automation so my job is ideal as I'm always trying out new software and looking at using tech to make things better, easier and quicker.

A lot of this came in useful with my cinema room project, especially the design software because long before I was ready to start the project I was messing about with designs and ideas. So I had an idea of what I wanted to do and had modelled an initial draft design in 3D.

And you're a home cinema fanatic?

This is the first setup that I would class

officially as a home cinema. I've had some good TVs before with soundbars and different media systems, etc, but nothing like this.

Ever since going to the cinema as a youngster I've been fascinated with the technology behind it. Then, since having children, we've found ourselves at various theme parks that all have some sort of 3D/4D cinema. Rather than just sitting and enjoying the experiences I found myself looking at the lighting, the projection, the sound systems and thinking of how cool it would be to get something similar at home (for the children, of course). This is how the idea came about.

So you decided to convert your garage?

Up until the point we moved to our current property we never really had a usable space that could be dedicated to this type of project.

Yet from the moment we bought this house I knew that the double garage would be perfect for what I wanted.

We had a single garage before, which was detached and not really big enough for a cinema. The only thing we ever seemed to have in it was 'junk' that we were keeping for the sake of it. And I knew that any garage we had was never going to house any cars so the new one was just a bigger space to store more stuff that we didn't need! I was keen to put the new one to good use; by splitting it I was able to retain part of it as a normal garage and the rest was suitably sized for the cinema project.

What work did you have to do to get the garage ready for decoration and kit installation?

There was an old door and window that



Left: Karl's finished room offers seating for six, 3D projection, film poster art and all his movies available via an 8TB media server

Below: The makeover required a lot of hard graft. First, an internal wall was built to divide the double garage, and then a raised floor was constructed, complete with damp proof membrane and plenty of Kingspan insulation



needed taking out. I removed these myself and then had a bricklayer close it up for me. Then there was an internal wall to build to separate the new garage storage space from the main room. Both spaces are 5m long. The cinema is 3m wide, while the storage area is 1.3m wide.

I then needed to put a raised floor in, as the current floor level was lower than the adjoining room and I didn't want there to be a step in or out of the room – this helped as it enabled me to put in a damp proof membrane and make sure the floor was well insulated.

Once the floor was in there was some electrics to move around – splitting lighting circuits, etc – and installing more sockets to ensure all the equipment would have sufficient power-points.

While doing the electrics I ran in some cables for the planned downlighters, projector and speakers – I already knew where these would be going and as I knew the room would eventually need plastering I made sure everything I could think of would be in place. I then patched up areas with plasterboard and moved a loft hatch.

I also wanted a coffered ceiling effect so I could make use of it for down-lighting some posters. This meant the plastering had to be a two-part operation. Once the plastering of the walls and ceiling was complete I then

needed to build the area around the top of the wall to make the coffer effect, which I made out of timber. This then had a plasterboard bottom and sides; it's open at the top which allowed me to run cables around the room out of sight, and put some spotlights in the void.

Next on the list was to bring in a specialist to build a bespoke media unit to store all my equipment. The unit has six compartments;

'The most complex part of the build was to convince my wife that we actually needed this room!'

the middle two have smoked glass panels to allow any IR remotes and PS controllers to work directly.

Once that was complete the final building work before decoration was to build a plinth for the second row of seating, to give the optimal view over the first set of seats to the screen. This was built similarly to a stud wall and again was insulated. It was tricky trying to work out how high the plinth would need to be without actually having picked seats or projector yet!

Once the lights were installed they were configured in two separate circuits that allow me to have the main lights on separately to the poster lights or both on together if necessary.

What was the most complicated part of the conversion?

The most complicated part was to convince 'the wife' that we actually needed this room. She felt we needed to use part of this space to increase our kitchen. She did come around to my way of thinking, and since it has been completed she now admits it was definitely the right thing to do.

Building-wise, most things seemed to just fit into place throughout the process. The hardest part was deciding on the size of the coffered ceiling as it was hard to visualise what this would look like when complete, and I didn't want to make the room feel smaller than it was. I'm happy with the final outcome and wouldn't change anything about the ceiling if doing this again. I think the size is just right.

How long did it take to complete?

The project was always going to be a bit of a slow burner as we decided that I would carry out most of the work, mainly at weekends. We also went long periods of time where



Top left: A newly-fitted door separates the cinema room from the rest of the house

Above: The purpose-built ceiling coffer allowed space for downlighters to spotlight Karl's collection of film posters, and cable management

Far left: The rear seating row sits on a raised plinth for a better viewing position

Left: Halfway through completion, with lighting and plastering finished

no work was completed as we had other commitments. All in all it took about ten months from start to finish. However, if I was to estimate how long it would take if the work was undertaken without gaps, I would say around six weeks.

Have your wired the room for future kit?

Most cables I have put in 'should' be interchangeable with future upgrades. I have also run some rope around the cavity and roof spaces to allow me to pull further cables around the room in the future. The main additional cables I can foresee is if I upgrade from 5.1 to 7.1 surround sound, or even up to Dolby Atmos.

So, what kit's in your setup?

The pictures are from an Optoma HD26 3D DLP projector and the audio is via a Yamaha YHT1810 AV receiver/5.1 surround speaker package. Hooked up to the receiver are an 8TB media server running Kodi, a PlayStation 4 and a Playstation 3, plus Sky+ HD. I also have Chromecast and Apple TV connected to the projector.

And what about the seating?

They are three-seater leather settees from Sofa Works. I found the high-quality dedicated cinema seating was expensive and between

my wife and I we found these and thought they would be perfect. The two end seats of each settee fully recline and the size of them suits the room.

Roughly how much have you spent?

The building work to create the shell of the room did not cost a lot of money at all, then when it comes to equipment you can spend as much or as little as you like, really. Being a relative novice I decided I wanted to just get some entry-level equipment until I learnt a bit more and could actually see for myself how the room would react with the acoustics and viewing distances, etc. Overall we have probably spent around £6,000.

Do you have anything you'd change about the system?

I know it sounds a bit cliché but I love everything about the system. I suppose with it being my first home cinema setup I am being wowed by every aspect of it as I don't have any previous comparisons. If I was pushed to pick a favourite aspect I think I would choose the piece of software I use for all my media files – Kodi. This gives a professional viewing feel to my films and TV shows. I have them all stored onto a specially-built media server and Kodi is at the front end.

An add-on has also allowed me to show pre-roll videos and can be set to download movie trailers relative to the film's age rating to show before the movie. When you have gone to the trouble of having a dedicated cinema room I think it's worth going that extra bit so you can show off to your friends and get the full cinema experience!

Another bonus is that it is all controlled from an app on iPad and iPhone rather than having to access the PC.

What's next on your equipment wish list?

Although I am currently using a separate media server-configured PC that's connected to my AV receiver, I think logically the next bit of kit to invest in would be an upgraded AV receiver that is networkable, I have my eye on the Denon AVR-X1200W which is the wireless networked 4K home cinema receiver that supports Dolby Atmos. I also need to decide on a universal remote to control everything. I am still researching this to find the one that suits best so to avoid having all the equipment on separate remotes.

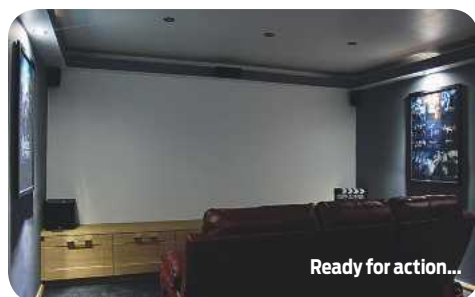
Also as part of the original plan, there was an idea to install LED strip lights along the underside of the plinth that the second row of seating is on. Also, I planned a set running around the perimeter of the room lighting upward from the pelmet in the ceiling.



Plasterboard overload!



Karl's bespoke AV cabinet



Ready for action...

However, I decided to complete the installation without these initially but have put provisions in to make sure these can be installed at a later date. I will get around to installing this but will probably enjoy the room how it is for a while!

What's your favourite bit of kit?

My favourite bit of kit is probably the AV receiver. I know I said that this is probably the bit of hardware that I would upgrade next but apart from not being networkable, it has everything I currently need and is simple to use.

Are friends and family impressed with your garage-turned-cinema?

Everyone who has been in and seen the room thinks it's awesome. I get a really proud feeling when showing it off, I think partially because I have carried out the majority of the work myself, along with a couple of electrician friends along the way.

I also seem to be getting friends inviting themselves over a lot more recently which I can't complain about – it gives me a chance to show it off more.

And what discs do you use to demonstrate the system?

I typically show some of the usual suspects – *Avatar* always looks good and there's a great scene in *Prometheus* that looks awesome too.

I usually go through the whole list of things I have got connected, to be honest. Start off

with the Sky+ HD box showing off the sports channels when the football's on, then I turn on the PlayStation 4 and play around with *Call of Duty*, *Battlefield Hard-line*, *Driveclub* and *FIFA*. Then I normally switch to the media server and make visitors see the pre-roll and trailers before showing the film quality off.

What are your favourite movies?

Generally I'm a big fan of some of the older movies. The *Alien* franchise is probably top of my list (hence the *Alien* poster in my cinema room). As of late a lot of the Marvel films coming out are pretty decent and they will continue to at least 2020 so there's lots to look forward to! The kids love to watch the *Jurassic Park* films in there, especially my son Aeron – and even though the original is over 20 years old, the T-Rex scene still looks stunning through my projector. My daughter Rhiannon is also *Harry Potter* mad so these will be screened numerous times.

Are you excited about 4K and Dolby Atmos/DTS:X?

To be honest I am still pretty impressed by HD and even more so now I have a large screen to view it on. I think I will enjoy the newness of my setup in HD and 5.1 surround sound for a while and then start exploring upgrades. Dolby Atmos certainly looks on a whole other level when it comes to sound and will probably be one for the future for certain ■

SHARE YOUR SYSTEM IN THE MAG!

IF YOU WANT TO BE THE NEXT 'AV-HOLIC' IN HCC, you'll need to send us some hi-res images of your cinema room. The better-quality image we get, the better your room will look. So follow these simple steps:

1. Go big. Set your camera to take images at the largest possible size, and at the highest resolution. Don't worry about cropping or resizing – we will make them print-ready.
2. Get in focus. Make sure your photos are as sharp and clear as possible. If you have one, use a tripod, or place your camera on a flat, steady surface and take pictures on a delay. The sharper they are, the bigger we can print them.
3. Let some light in. While we tend to watch movies in the dark, our

cinema systems look their best when they are lit. If you can shoot with natural daylight, do so. If your room doesn't get a lot of light (a garage conversion, for instance) then switch on whatever lights are fitted. Avoid using flash wherever possible.

4. Be thorough. Send photos of as much of the room as possible. Images of both the front and back of the room, the kit rack, speakers, seating, disc shelf, movie poster art... The more the merrier.

5. Don't be shy. We'd love a picture of yourself – unless you want to remain anonymous...

6. Show us more. Got pictures of your room before it was a cinema? Or snaps of work being done? We love to see these, too.

Email your selection of images to letters@homecinemachoice.com with the subject heading 'AV-Holic'. Provide us with some information about your setup and we'll then be back in touch.

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The kind people at cable king AudioQuest are giving away a two-metre Pearl HDMI cable to our AV-Holic each month. The Pearl, which retails for £34, uses long-grain copper conductors and a foamed polyethylene insulation for a robust construction. All AudioQuest HDMI cables up to 10 metres meet or exceed the 10.2Gbps maximum data rate for HDMI and are approved High Speed with Ethernet cables.





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PLAYBACK

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It's Miller time!

Mad Max: Fury Road → Warner Bros. → All-region BD



Filmmaker George Miller delivers another post-apocalyptic action epic as *Mad Max: Fury Road* revs up on Blu-ray. Find out just how mad its AV credentials are on p98...

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

Another Hollywood blockbuster, another bad day on the Golden Gate Bridge...



Get your home cinema Rocking

A family comes together as California is ripped apart in this Dolby Atmos-powered disaster flick

→ SAN ANDREAS

When California is devastated by a magnitude 9.1 earthquake, Los Angeles Air Rescue pilot Ray Gaines (Dwayne 'The Rock' Johnson) and his ex-wife Emma (Carla Gugino) set out to find their daughter Blake (Alexandra Daddario) in the ruins of San Francisco.

While it's unlikely to appeal to those looking for a more cerebral (or even slightly plausible) form of cinematic escapism, *San Andreas* scores high on the Richter Scale for sheer entertainment value. Like all the best disaster movies, it's fully aware that half of the fun comes from the moments of devastation; director Brad Peyton delivers scene after scene of convincingly muscular CGI devastation (although the VFX effects budget doesn't seem to have been able to cover the poorly-photoshopped family portrait seen early in the film). However, it also recognises that while watching skyscrapers crumble into dust is fun, it's not something that can sustain a two-hour flick. Hence the proficient cast that's been assembled, with The Rock's boundless charisma and enthusiasm infecting every frame of the project and going some way to making amends for the occasional fault lines that run throughout the script.

It's as big and dumb as films come, but *San Andreas* is no disaster.

Picture: There's little room for complaint when it comes to this disc's 2.40:1 Full HD presentation. While there's a slight softness to some of the CG cityscapes, the live-action photography is crisply delineated and boasts pleasingly refined textures. Blacks are deep and lustrous, while primary colours have plenty of pop. Another impressive hi-def encode from the ever-reliable Warner Bros.

Audio: Who'd a thunk it? A film that sees skyscrapers collapsing and a tsunami hitting San Francisco delivers an absolutely barnstorming Dolby Atmos soundtrack.

This is an LFE-rich showcase for the format, with the vertical dimension adding an even greater sense of immersion and scale to the sound design. Falling debris is a particular strength, even if the sheer amount of carnage means that precise object-tracking is a little tricky.

Extras: Brad Peyton is on hand with an enjoyable, informative chat track, while a trio of short featurettes provide more info on the production (including the fact that the score features sped-up recordings of the real San Andreas fault). Finishing things off are eight deleted scenes, plus gag- and stunt-reels.



HCC VERDICT

San Andreas

→ Warner Bros. → All-region BD
→ £25 approx

WE SAY: An enjoyably silly disaster flick bolstered by a strong cast and even stronger Dolby Atmos sonics

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

It's time for some Rock and roll...



[Spooks]: The Greater Good

Entertainment One → Region B BD
£20 approx



This belated spin-off from the defunct BBC series is a decent little espionage thriller that does a good job keeping you on your toes with its various twists and turns, even if it can't compete with the big-budget modern Bond and Bourne movies that clearly inspired it. The HD platter's AVC 2.40:1 1080p encode is deliberately subdued, but the DTS-HD MA 5.1 mix is a more lively affair that opens up the action nicely. An all-too-brief *Making of...*, eight interviews, three deleted scenes and the trailer make up the disc's modest extras.



The Falling

Metrodome → Region B BD
£20 approx



Redolent of Peter Weir's haunting masterpiece *Picnic at Hanging Rock*, writer-director Carol Morley's *The Falling* is a similarly enigmatic coming-of-age tale about a mysterious outbreak of fainting at a girls' school in the late 1960s. Smart, suggestive and funny, the film also looks gorgeous – which is presumably why UK label Metrodome has seen fit to release it on Blu-ray (something it does very rarely). In addition to the stunning Full HD 1.85:1 visuals, the disc also serves up brooding DTS-HD MA 5.1 audio. The sole extra of note is Morley's thematically-linked 2006 short *The Madness of the Dance*.



Robot Overlords

Signature Entertainment
All-region BD → £16 approx



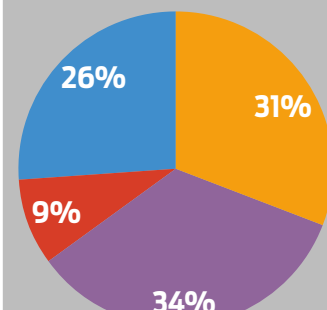
The UK film industry made a belated entry into the Young Adult sci-fi genre with this tale about a group of kids rebelling against alien invaders who have conquered the Earth. Sadly, despite a promising start, *Robot Overlords* seems hampered by limitations of budget and ambition that leave it feeling more like something you'd find on CBBC than at a multiplex. And while this Blu-ray's 1080p encode is technically sound, it's the latest in a worrying trend this particular UK label has shown for reformatting the original 2.35:1 theatrical framing to 1.78:1 for home consumption.



WE ASKED...

Which is the best of the four *Mad Max* films?

- *Mad Max*
- *Mad Max 2 (aka The Road Warrior)*
- *Mad Max Beyond Thunderdome*
- *Mad Max: Fury Road*



Results from www.homecinemachoice.com
Go online for more polling action



Hunting for high-definition thrills

Finnish filmmaker serves up an absurdly enjoyable boys'-own action-adventure

→ BIG GAME

The day before he becomes a teenager, 12-year-old Oscar (Onni Tommila) is sent off into the Finnish woods with a bow and arrow in order to prove himself a man. Despite being barely able to pull back the string on his weapon, Oscar dreams of bagging a bear just like his father once did. Instead, he finds himself having to help save beleaguered President of the United States (Samuel L. Jackson) when Air Force One is downed by terrorists.

Big Game is written and directed by Jalmari Helander, who gave audiences the brilliant 2010 comedy-horror *Rare Exports: A Christmas Tale*, and is a fun throwback to the children's action romps of the 1980s/90s (*The Goonies*, *Home Alone*, et al). Like the best of those films it balances overblown action and tongue-in-cheek humour adroitly, with the latter largely used to make adults look like idiots, which should help ensure that it goes down well with its target audience of pre-teens.

Speaking of target audiences, while *Big Game* was stripped of the now obligatory Samuel L. Jackson 'mother*****er' for its UK cinema run, it's been restored on this Blu-ray, bumping the certificate up to 15 in the process. While we're usually opposed to censorship, here we think the UK distributors got it right first time around. *Big Game* now risks being missed by the young boys it was so clearly made for.

Picture: The flick arrives on Blu-ray with a striking 1080p encode framed at 2.40:1. Not only are colours richly saturated, but the inherent sharpness of the digital photography ensures there's plenty of finely-resolved detail and textures on show.



The only slight technical issue is that of unwanted noise showing up in darker scenes – notably during the plane crash in Chapter 4. But this shouldn't distract much from what is otherwise a particularly vibrant and attractive picture.

Audio: From plane crashes to gunfights, ejector seats to explosions, *Big Game*'s DTS-HD Master Audio 5.1 mix offers plenty of acoustic action to keep your speaker setup engaged. But in addition to all of the booms and crashes, the soundtrack proves to be a fairly nuanced affair, reinforcing the action with subtle atmospheric effects and impeccably rendered dialogue.

Extras: Entertainment One didn't bag itself any big game when it came to sourcing extra features for this BD release. Apart from a three-minute VFX breakdown reel, the only other goodies are 11 brief interview snippets with members of the cast and crew (including a bored-sounding Sam Jackson).



HCC VERDICT

Big Game

→ Entertainment One → Region B BD
→ £20 approx

WE SAY: A fun-packed action flick for young boys, provided you can put up with Sam Jackson's potty-mouth

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Max hoped his car would still pass its M.O.T.



DISC
OF THE
MONTH

Faster and far more furious

You'd have to be even madder than Max to skip this Blu-ray outing for George Miller's car caper



→ MAD MAX: FURY ROAD

It's been 30 years since 'mad' Max Rockatansky last graced the silver screen with a new adventure. Judging from this two-hour filmic firecracker, time has done nothing to diminish the character nor the ambitions of his creator, 70-year-old Australian writer-director George Miller, who returns to the wastelands for a spectacular sequel/reboot of operatic proportions.

This time around Max (Tom Hardy) gets caught up with five young women fleeing their lives as wives of grotesque warlord Immortan Joe (Hugh Keays-Byrne). They're heading across the desert in search of a better life, guided by Joe's turncoat lieutenant, Imperator Furiosa (Charlize Theron).

Cue two hours of breathtaking, rubber-burning vehicular pandemonium...

Picture: Colour graded to within an inch of its life, *Mad Max: Fury Road* is one of the most visually striking and distinctive-looking big-budget movies to emerge from a Hollywood studio. Primarily painted in a gritty and highly-detailed sepia tone, this monochromatic aesthetic is broken up by strident patches of vivid colour – most notably golden stretches of sand and the rich reds that accompany explosions and jets of flame.

Warner Bros.' AVC-encoded 2.40:1 Full HD Blu-ray presentation of the film captures all of the above perfectly. Colour saturation is

excellent, fine object detail is meticulously reproduced and shadow delineation is strong, giving a sense of depth to even the darkest sequences.

It is, quite simply, magnificent.

Note that the movie is also available on 3D Blu-ray, although Warner Bros was unable to supply us with a review copy.

Audio: When it came to sound design, the main thing we took away from seeing *Mad Max: Fury Road* at the cinema was how insanely loud it was. Revisiting it on Blu-ray, courtesy of the platter's Dolby Atmos soundtrack, revealed so much more.

While the audio is every bit as powerful as you'd expect from what is essentially a two-hour car chase, it's not a simple wall of noise. There's a sense of purpose and considered design to every element, with the clarity and range giving you ample opportunities to savour it all.

Comparing the core Dolby TrueHD 7.1 mix to the Dolby Atmos stream it's hard not to be impressed by the way in which the latter enhances your acoustic enjoyment. Music and atmospheric effects regularly expand out into the height channel, creating a more coherent and immersive experience.

The sound designers aren't afraid to play around with more specific positional effects either, with a moment in Chapter 2 where one of the War Boys knocks on the roof of the War Rig to get Furiosa's attention causing you to look up involuntarily.

Given the attention paid to all of the other speakers in your setup (including the subwoofer, which puts in a serious shift here), it's a pleasure that



This is the kind of in-car sound system Team HCC can get really behind!



Charlize Theron stars as all-action heroine Furiosa

HOME CINEMA CHOICE

DEMO SCREEN...

Mad Max: Fury Road

Time code: 019.06 – 030.12



Going off-road: Fleeing Joe's forces, the War Rig comes under attack from a group of scavengers, with scenes of slo-mo action giving you plenty of time to savour the lush 1080p imagery.



Enter the War Boys: When Joe's forces catch up with Furiosa things get even crazier. First they set about taking down the remaining scavengers before turning their attention to the War Rig itself.



Storm warning: Realising she has no other option, Furiosa heads for a massive dust storm in an effort to lose her pursuers. Not great news for Max, who is still strapped to the outside of a War Boy's car!



Eye of the storm: Lightning crackles and cars are sucked into the air inside the storm, while the Atmos mix strips everything away apart from the score, before once more building up the chaos and fury.

the centre channel isn't forgotten. Amongst the shifting sounds and dynamic pans, the centre-channel provides a stable anchor for dialogue (what little there is), ensuring that even Hardy's muttered ramblings are discernible.

When it comes to picking audio highlights, it's practically an impossibility: dial up any of the film's 13 Chapters and you'll find yourself lapping up a dazzling aural soundscape full of tactile effects and astonishing dynamics. We've given this a five-star audio rating, but in all honesty it easily deserves six!

Extras: Warner's Blu-ray release of *Mad Max: Fury Road* looks slightly underwhelming when it comes to bonus features. Yet while there aren't all that many to dig into, overall they're of a high standard and do a solid job of exploring the making of the film.

The half-hour *Maximum Fury: Filming Fury Road* starts off like a traditional overview of the production (with particular attention paid to storyboarding), before moving into detailed accounts of the creation of some of the film's key stunt sequences.

Mad Max: Fury on Four Wheels runs just shy of 25 minutes and takes a peek at the design and creation of nine of the film's post-apocalyptic automobiles, including recreating and enhancing Max's iconic V8 Interceptor.

Being mad, Max brings a bike to a car chase...



The Road Warriors: Max and Furiosa (11 minutes) is somewhat less involving. This features stars Tom Hardy and Charlize Theron discussing their characters, and their impressions of the director and the movie. Understandably they're ecstatic about both.

The Tools of the Wasteland (14 minutes) focuses on production design and props, while *The Five Wives: So Shiny, So Chrome* (11 minutes) talks to actresses Rosie Huntington-Whiteley, Riley Keough, Zoë Kravitz, Abbey Lee and Courtney Eaton.

Finally, there's a four-minute reel of production tests, behind-the-scenes video and raw footage with no CGI enhancements or grading; and a trio of very brief and forgettable deleted scenes.



Former X-Man Nicholas Hoult joins the mayhem as the conflicted War Boy Nux

Who wouldn't want to be one of his wives?



HCC VERDICT

Mad Max: Fury Road

→ Warner Bros. → All-region BD
→ £25 approx

WE SAY: A breathtaking Blu-ray presentation of the year's maddest action blockbuster. Buy it now!

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

ARCADE ACTION

Bigscreen home entertainment isn't just about movies anymore. Check out these two videogames vying for time on your home cinema system...

Mad Max

Warner Bros. Interactive Entertainment → Xbox One/PS4/PC → £50 approx



With its mix of post-apocalyptic adventure and vehicular combat there can be few film franchises that are so obviously videogame-friendly as *Mad Max*. Which makes it surprising that it's taken so long for gamers to get the chance to jump into Max's boots.



Developed by Avalanche Studios (of *Just Cause* fame), *Mad Max* gives players a massive wasteland to traverse as they do battle with psychotic gangs under the control of local warlord Scabius Scrotus, and collect the materials needed to complete the construction of the legendary vehicle Magnum Opus. All of which boils down to a huge open-world adventure built on a blend of superbly realised motorised mayhem and furious fistcuffs.

Rather less satisfying is the developer's decision to artificially prolong the story mode by locking off missions until you've met specific requirements and added enough upgrades – this forces you to take on every side quest you find no matter how dull and repetitive it may get. However, this element is far from being a disaster; more an annoyance that's quickly forgotten when you get caught up once again in the brilliant story missions. It's also a shame that while the game looks sensational for the most part, there are occasions where the frenetic action causes the visuals to become a bit laggy.



Metal Gear Solid V: The Phantom Pain

Konami → Xbox One/Xbox 360/PS4/PS3/PC → £50 approx



The news that Hideo Kojima was leaving Konami came as a blow to gamers around the world – but if this really is his final *Metal Gear Solid* game then he couldn't have come up with a better way to bow out. Make no mistake about it... *The Phantom Pain* is an exceptional gaming experience that is sure to be sitting at the

top of most 'Game of the Year' lists when 2015 draws to a close.

Cherry-picking the best elements from the previous instalments in the series (including the PSP's underrated... *Peace Walker*) and adding plenty of new features, *MGSV:TPP* gives gamers

an emergent open-world Afghanistan for Snake to sneak his way around.

A varied playground of death and destruction, the game gives players a free hand in how they approach each mission, and keeps you on your toes by constantly adapting to repeated strategies – you can't stick to one tried and tested methodology. Add to that a thrilling story, astonishing graphics, awesome sound design (including Kiefer Sutherland's superb voicework) and you have an electrifying title. And that's before you experience the joys of Snake's new equine chum...



Wayward Pines

Twentieth Century Fox → R2 DVD
£25 approx



M. Night Shyamalan made a name for himself as the master of the twist – now he's impressing as producer of this ten-part TV series that starts out like a mix of *Twin Peaks*

and *The Prisoner* before zooming off in a completely unexpected and brilliantly bonkers direction. Sadly bypassing Blu-ray, *Wayward Pines* makes its DVD debut as a triple-disc set boasting stylish anamorphic 1.78:1 transfers, atmospheric DD 5.1 audio and two short behind-the-scenes featurettes.



Knights of Sidonia: Complete Series One

Animatsu → All-region BD
£40 approx



Following the destruction of Earth by the alien Gauna, the remnants of humanity flee across the universe on the massive spacecraft *Sidonia*, battling their enemy with the

aid of robotic mecha. Heavily indebted to the *Battlestar Galactica* reboot, this gripping Netflix-produced 'toon is the ideal stop-gap solution for anime fans still waiting for *Evangelion 3.33* to turn up over here. While rather pricey for just 12 episodes, this 'Deluxe Edition' sports excellent 1080p visuals, kinetic DTS-HD MA 5.1 sonics and a fair selection of bonus goodies.



The SpongeBob Movie: Sponge Out of Water

Paramount → All-region BD
£25 approx



Fans of the irrepressible star of Nickelodeon's hit cartoon will no doubt have a blast with this loopy big-budget movie that brings SpongeBob (and pals) into our world as CG-rendered

superheroes. Relentlessly in-your-face and head-spinningly surreal, the film (like the 'toon that spawned it) is an acquired taste – but even those immune to its charms will have to admit that it looks and sounds absolutely superb on Blu-ray. The disc also offers a sizeable array of aquatic extras.





The original design for Milton Keynes was a bit more advanced...

Taking audiences back to the future

Brad Bird's retro-futuristic sci-fi flick dazzles with spectacle when it lays off the message, man

→ TOMORROWLAND: A WORLD BEYOND

Located in an alternate dimension, the sci-fi city of Tomorrowland is a haven for inventors and dreamers; a technological wonderland founded by Gustave Eiffel, Jules Verne, Nikola Tesla and Thomas Edison. It's a place where genius can be unleashed for the betterment of all mankind, without interference from governments or big business. Or at least, that was the plan...

Unfortunately, things in Tomorrowland have taken a turn for the worse and the fate of our entire world now hangs in the balance. Humanity's only hope rests in the hands of a most unlikely trio – teenage dreamer Casey (Britt Robertson), jaded inventor/Tomorrowland exile Frank (George Clooney) and renegade robot Athena (Raffey Cassidy).

Best known for his trio of modern animated classics (*The Iron Giant*, *The Incredibles* and *Ratatouille*) writer-director Brad Bird's second foray into live-action cinema is clearly a more personal project that his last (2011's *Mission: Impossible – Ghost Protocol*), but that doesn't automatically make it a better one. While the Space Age nostalgia that props up *Tomorrowland...* makes for a refreshingly optimistic piece of bigscreen escapism, it suffers from an uneven and message-laden script that can't help but distract from the awe and wonder that fills the screen the rest of the time.

It's a shame, because there's plenty to enjoy and admire here – particularly the action scenes,



with Cassidy doing a terrific impression of a mini-Terminator at times. Meanwhile Clooney oozes charisma at every turn and Robertson is just the sort of smart and upbeat teenage heroine that mainstream Hollywood cinema often lacks.

Provided you can put up with the sledgehammer-subtle messages and allow yourself to be swept up by the glitz, *Tomorrowland...* is worth a watch.

Picture: The first ever Dolby Vision theatrical release, *Tomorrowland...* hits Blu-ray with a gorgeous AVC 1080p encode framed at the slightly unusual 2.20:1 aspect ratio. Bursting with bold colours and crisp detailing, it's such an inviting image that when Casey gets her first view of the city across the field of golden corn (Chapter 3) you'll want to step into the frame and join her.

Audio: Right from the off, when a rocket launches across your speakers during the futuristic update of the Disney logo, you know you're in for a treat with this Blu-ray's DTS-HD MA 7.1 soundtrack. Expansive, dynamic and bold, it has no problem keeping up with the film's jet packs (Chapter 1), exploding shops (Chapter 5), rocket-powered bath tubs (Chapter 7) or Eiffel Tower retro rockets (Chapter 9). Like the film's image quality, this is terrific.

Extras: Fans get a mundane selection of Blu-ray bonuses taking the form of three short behind-the-scenes featurettes, spoof outtakes from an educational video, an animated short, two video diaries, three deleted scenes and a fake shop advert.



Most ladies would look happier to be sharing a bath with George Clooney



HCC VERDICT

Tomorrowland: A World Beyond
→ Walt Disney → All-region BD
→ £25 approx

WE SAY: Stunning picture and sound make this flawed but fun sci-fi flick worth a look on Blu-ray

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



A tale of two (Nightmare) Cities

Unable to deliver a pristine restoration, label offers fans a choice of presentations

→ NIGHTMARE CITY

Cited by many as the first film to feature running zombies, Umberto Lenzi's absolutely bonkers 1980 Italian-Spanish splatter flick (known in the U.S. as *City of the Walking Dead*) finds a city overrun with pizza-faced blood-drinking ghouls in the wake of an accident at a nuclear power station.

As you might expect, it's the sort of film that improves immeasurably in proportion to the amount of slack you cut it – although a pre-existing appreciation of bad acting and scenes of schlocky special effects also help. Hardly a classic of the genre then, but still fun in its own way.

Picture: Arrow Video's *Nightmare City* Blu-ray is one of those platters where the traditional approach doesn't really apply. Once again the label has gone back to the source (in this case the original 2-perf negative) and undertaken its own 2K restoration. However, this time around some of the damage (specifically some large chemical stains that affect the opening reel and a handful of other scenes) proved impossible to correct.

While an alternate 4-perf reversal dupe negative source exists, the trade-off for not having to put up with the staining is a noticeable drop in sharpness and clarity (this was the source used by Raro Video for its 2013 US Blu-ray release).

As such, Arrow Video has done the only sensible thing and included both 1080p presentations of the film on this disc. Clearly neither AVC 2.35:1 encode is in any way perfect, but by putting the choice of which version to watch in the viewer's hands, the label has demonstrated a desire to give



us the best possible solution. It should be applauded for doing so.

Audio: Both presentations offer a choice of Italian and English LPCM mono mixes. Thankfully, neither soundtrack proved anything like as problematic as the imagery, and both have been nicely cleaned up ensuring that the (post-sync) dialogue is clear and Stelvio Cipriani's memorable electronic score gets a fresh lease of life.

Extras: In addition to both transfers, this Blu-ray hosts plenty of extra goodies. There's a chat-track from *Fangoria* editor and zombie fan Chis Alexander; interviews with director Umberto Lenzi and actress Maria Rossaria Omaggio; a tribute to the film and its director from Eli Roth; an overview of the challenges faced by the restoration team (see split image above); a trailer; and alternate opening titles (under the name *Attack of the Zombies*). The disc also ships with a 20-page booklet.



HCC VERDICT

Nightmare City

→ Arrow Video → All-region BD & R0 DVD → £18 approx

WE SAY: A ridiculously comprehensive hi-def package for an enjoyably hokey slice of '80s Euro splatter

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Unfriended

Universal Pictures → All-region BD
£23 approx



The logical end-point of the handycam horror sub-genre, this inventive chiller plays out entirely through the windows

on a computer desktop as a group of friends Skype each other and chat on Facebook. While it may sound like an unappealing prospect, the filmmakers put the concept to effective use as the teens are picked off by a vengeful ghost in the machine. While the 1.78:1 1080p imagery is obviously limited by the source material, the DTS-HD MA 5.1 mix is more of a cheat and makes good use of the full soundstage as the scares ramp up. Sadly there are no extras.



Horror Hospital

Odeon Entertainment → Region B BD
£15 approx



This hammy piece of British horror from 1973 stars Robin Askwith as a rock musician who takes a break from the

big city at a country health resort, only to discover that it's a front for a mad doctor (Michael Gough) with a penchant for performing diabolical experiments on his hip young guests. Every bit as crazy as Michael Gough's *Doctor Storm*, *Horror Hospital* is a hoot from start to end and cuts a surprisingly fine figure on Blu-ray thanks to this disc's impressive 1.66:1 Full HD transfer and crisp LPCM mono audio. Fun extras include a *Making of...* doc, a chat-track and an interview with Askwith.



Eaten Alive

Arrow Video → Region A/B BD & R1/R2 DVD → £18 approx



Tobe Hooper followed up *The Texas Chain Saw Massacre* with this sick flick about the owner of a rundown swampland

motel who has a fondness for gutting customers with a scythe or feeding them to his pet crocodile. Shot entirely on soundstages and lit in bold primary colours, the film has a deliberate air of artificiality that adds an extra frisson of interest to what is otherwise a rather formulaic (and messy) story. Not only does this Blu-ray deliver an impressive 1.85:1 1080p encode and clear LPCM 1.0 audio, it also cues up some good extras, including a chat-track and interviews.



The Deadly Mantis

Fabulous Films → R2 DVD
£15 approx



A giant prehistoric praying mantis is defrosted in the North Pole and sets about bringing down planes

and upending buses as it pays a visit to the U.S. in this 1957 creature-feature. One of the less impressive examples of the 'giant insect' sub-genre, *The Deadly Mantis* sadly features far too little monster action and far too much stock footage of fighter jets (not to mention lectures about radar technology). On a more positive note, the DVD's 1.37:1 transfer is in pretty good shape, as is its Dolby Digital mono soundtrack. Galleries of lobby cards, stills and posters are included.



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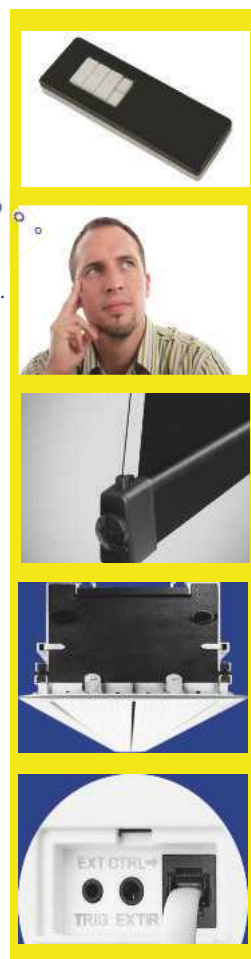
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Hit series shows no sign of rot

Five seasons in and this televised zombie apocalypse just keeps getting better and better

→ THE WALKING DEAD: THE COMPLETE FIFTH SEASON

After all this time you'd be forgiven for thinking that AMC's popular horror series would have run out of ways to variously excite and torture its fans. Well, you'd be dead wrong. This fifth season finds *The Walking Dead* at its best, pushing its characters (and audience) to the very limits of their endurance, before twisting everything around and offering the prospect of a real transformation for the show – one that would shift the focus of the drama away from mere survival and onto something much larger and more complex.

As with previous seasons, this latest batch of 16 episodes remains a TV *tour de force*, with every elated high our protagonists experience being counteracted by a devastating low (often the brutal, unexpected death of one of their own). While this could potentially prove wearying, superb performances across the board ensure that you stay invested in the characters and their travails – no matter how mad things get.

All told, *The Walking Dead* is one of the most compelling and emotionally resonant pieces of drama coming out of the US right now. The fact that it happens to be about a zombie apocalypse and is couched in the sort of bloody gore gags that used to get movies banned in the UK in the 1980s only makes it all the more special.

Picture: Shot mainly on 16mm film, *The Walking Dead* boasts a distinctively coarse and grainy



As usual, there's no shortage of blood spilled in *The Walking Dead's* fifth season



HCC VERDICT

The Walking Dead: The Complete Fifth Season

→ Entertainment One

→ Region B BD → £50 approx

WE SAY: Superb show. Superb boxset. What more do you need to know?

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

aesthetic that is competently replicated by the run of AVC-encoded 1.78:1 Full HD presentations featured in this five-disc Blu-ray outing.

While this gritty approach suits the mood of the show perfectly, the downside is that fine object detail understandably takes a bit of a hit in mid- and long-shots. Thankfully, close-ups hold up better to scrutiny, revealing plenty of intricate texturing; you can revel in every cut, bruise and mark on the worn faces of the characters.

Audio: Ever wondered what it sounds like to be trapped in a revolving door with hordes of zombies surrounding you on all sides? Well, that's just the sort of thing *The Walking Dead's* DTS-HD MA 7.1 mixes do so very well. Engaging your entire speaker array to create a room-filling sense of depth, the show's sound design is aggressive and atmospheric. And if you're still wondering about that initial question: it sounds terrifying, frankly!

Extras: There are plenty of bonus features here for fans to sink their teeth into – starting with seven fun and insightful episode commentaries featuring various combinations of the show's cast and crew.

The hour-long *The Making of The Walking Dead* and 77-minute *Inside The Walking Dead* are assemblages of episode-specific mini-featurettes offering behind-the-scenes info and looking at the production of key sequences. There are also two additional featurettes about the creation of a key location and the practical zombie effects; tributes to fallen characters, two video diaries and 13 deleted scenes.

Witnesses

Arrow Films → Region B BD
£20 approx



This stylish and creepy six-part French cop show should prove an acceptable stop-gap for those telly addicts

waiting for the next 'must-see' slice of Nordic noir. While the story is too uneven for *Witnesses* to ever be considered a classic, it's a classy enough production to overcome its narrative shortcomings on the strength of its acting and visuals. Unlike its boutique sister labels, Arrow Films continues to put minimum effort into TV product. So, while this two-disc outing offers well-rendered 1080i50 encodes and LPCM 2.0 audio, it is also completely bereft of bonus features.



Sleepy Hollow: Season Two

Twentieth Century Fox → All-region BD
£35 approx



Following a surprisingly strong debut season, this second year is a more muddled affair due to a network edict

to be 'less serialised', which almost stops the show dead mid-season. Thankfully, after some major missteps it delivers a superb finale that offers renewed confidence for the show's future. As well as gorgeously detailed AVC-encoded 1.78:1 Full HD imagery and atmospheric DTS-HD MA 5.1 audio, this four-disc Blu-ray also packs in three episode commentaries, a tribute to the show's fans, three *Making of...* featurettes and 18 deleted scenes.



The Dark Side of the Sun

Eureka Entertainment → R2 DVD
£30 approx



The wife of a British photographer killed while on assignment in Rhodes finds herself drawn into a strange

world of supernatural mysteries and international conspiracies in this six-part BBC mini-series from 1983. Sadly, time has not been kind to *The Dark Side of the Sun*. While the central mystery is intriguing enough to negate the frequently creaky storytelling, the source materials used for this barebones double-disc DVD release were clearly in a pretty sad state, with the six 1.37:1 transfers exhibiting excessive noise, macroblocking and ghosting.



Glee: Season Six

Twentieth Century Fox → R2 DVD
£30 approx



Six years since the singing started, *Glee* comes to an end with a 13-episode final season.

No longer the pop culture phenomenon it once was, this clutch of episodes sees the show bounce back from the doldrums of Season Five and get back to doing what it does best: mixing cheesy sentiment and trashy musical numbers in a high school setting, laced with plenty of risqué humour. And while we're still miffed by Fox's decision to stop releasing the show on Blu-ray after Season Four, this four-disc DVD holds up well with its colourful anamorphic 1.78:1 visuals and boisterous DD5.1 sonics.



Harder. Better. Faster. Stronger.

DC Comics' latest superhero TV series races onto Blu-ray with impressive results

→ THE FLASH: THE COMPLETE FIRST SEASON

Struck by lightning and doused with unknown radiation when an advanced particle accelerator malfunctions, crime scene investigator Barry Allen (Grant Gustin) discovers he has gained the ability to move at superhuman speeds. With the aid of a trio of science boffins from S.T.A.R. Labs, Allen transforms himself into the Flash and sets about stopping those other 'metahumans' who were transformed by the same radiation wave and are using their superpowers to criminal ends.

While DC Comics may be lagging behind Marvel on the big screen, when it comes to smallscreen superheroics it's streets ahead of the competition. Having clearly learnt from the mistakes of *Smallville* and the first season of *Arrow*, *The Flash* embraces its comic book origins wholeheartedly and delivers episode after episode of breathtaking spectacle. Smart, confident and quick-on-its-feet, this first season of *The Flash* is a blast from start to finish, and leaves us hungry for future additions to DC's connected TV universe.

Picture: Like its sister series *Arrow*, *The Flash* looks superb in hi-def. However, unlike that show's brooding hero, Central City's more cheerful Scarlet Speedster doesn't stick to the shadows quite as much, resulting in a series of brighter and more colourful 1.78:1-framed 1080p encodes.

In addition to plenty of richly-saturated primaries, the uptick in daylight sequences also helps with the clarity of the image. As such, intricate textures and fine detailing are evident at all times.



While some minor technical issues (digital noise, black crush) rear their head on occasion, they appear to be a by-product of the show's reliance on digital visual effects, rather than issues with the Blu-ray's AVC encodes.

Audio: Given its TV origins, *The Flash* lands on BD with a series of agreeable DTS-HD MA 5.1 mixes. While more spectacular set-pieces (such as the train crash in Chapter 6 of the episode *Going Rogue*) don't engage the rears quite as aggressively as you might hope, movement around the front of the soundstage is excellent. Dialogue is reproduced flawlessly.

Extras: Producers Greg Berlani and Andrew Kreisberg team up with DC Comics CCO Geoff Johns for an informative chat-track on the pilot. Elsewhere you'll find two in-depth *Making of...* documentaries, a gag reel, a chat with Mark Hamill about returning to the role of The Trickster, screen tests, deleted scenes and a half-hour San Diego Comic-Con panel discussion.



HCC VERDICT

The Flash: The Complete First Season

→ Warner Bros. → All-region BD

→ £40 approx

WE SAY: Make like the Flash and race to pick up this superb series on Blu-ray

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



The new belle of the Blu-ray ball

Lavish live-action remake backs up its traditional tale with sumptuous visuals

→ CINDERELLA

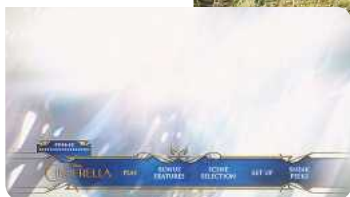
Following the box office success of both *Alice in Wonderland* (2010) and *Maleficent* (2014), Disney recently embarked on producing live-action remakes of some of its most beloved animated classics. While the idea of one day having to endure Tim Burton's *Dumbo* (yes, really) fills us with an unspeakable dread, the series has got off to a surprisingly strong start with this re-telling of *Cinderella* directed by Kenneth Branagh.

Rather than go down the revisionist route taken by *Maleficent*, the reason that this film works so well is that it offers such a sweet, good-natured and traditional retelling of Disney's version of the fairy tale (there are no sliced-off heels and toes here, boys and girls). Helping it along are a witty script and great performances from Lily James as the title character and Cate Blanchett as her stepmother. Supporting turns from Helena Bonham Carter (as the dippy fairy godmother) and Sophie McShera and Holliday Grainger (Cinderella's cruel step-sisters) add to the fun. Meanwhile, the ornate sets and lavish costumes ensure that, while it won't replace the 1950 original in your affections, it's no ugly step-sister, either.

Picture: This Blu-ray's 2.40:1-framed 1080p presentation brings out the very best in Dante Ferretti's opulent production design and Sandy Powell's colourful costumes. Spin up Chapter 10 to see the wonders it works with Cinderella's magical transformation and stick around for the close-up of



A big night at the Prince's ball left Cinders feeling a little ho(a)rse



the fairy godmother's face as she tells Cinders about the midnight rule – the detailing and sharpness clearly delineates each individual strand of hair. As hi-def viewing experiences go, this one is magical.

Audio: The film's DTS-HD MA 7.1 mix may not offer anything that will really trouble your speakers, but this doesn't mean that it doesn't serve the film well enough. Dialogue is clean, the music is enveloping and there's a pleasing sense of space engendered by the use of ambient effects across the soundstage.

Extras: Middling extras take the form of a trio of behind-the-scenes featurettes, costume test footage, a deleted scene and the *Frozen Fever* animated short that preceded the film in cinemas.

HCC VERDICT

Cinderella

→ Walt Disney → All-region BD
→ £25 approx

WE SAY: Magical visuals make this unexpectedly charming live-action fairy tale worth a look on Blu-ray

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Pickup on South Street

Eureka! The Masters of Cinema Series
Region B BD & R2 DVD → £23 approx



An arrogant pickpocket ends up in possession of a microfilm containing secret government information intended for a Communist spy in Sam Fuller's pugnacious film noir. Bursting

at the seams with Cold War anxiety and colourful characters (not least Thelma Ritter, providing the film's unexpected heart), *Pickup on South Street* is one of the director's best films and gets the chance to shine on Blu-ray courtesy of a stunning AVC 1.37:1 Full HD presentation based on a new 4K restoration. Extras are a little thin on the ground, but the two new interviews and extract from a French TV show about Fuller are excellent.



Mississippi Burning

Second Sight → Region B BD
£20 approx



Based on a 1964 FBI investigation into the murder of three civil rights activists by members of the Ku Klux

Klan, this award-winning 1988 thriller is heavy-handed at times, but it's hard not to get caught up in the sense of righteous anger that powers it. Despite some traces of digital manipulation and a rather messy grain structure, this Blu-ray's 1.85:1-framed 1080p imagery is generally fine, particularly with brighter-lit sequences. Informative extras take the form of a chat-track from director Alan Parker, plus new interviews with Parker, Willem Dafoe and writer Chris Gerolmo.



Girlhood

StudioCanal → Region B BD
£23 approx



Writer-director Céline Sciamma's third film cements her place as one of France's most exciting and relevant

filmmakers. Populated almost entirely by nonprofessional actors, this brash yet disarming coming-of-age story offers a uniquely female viewpoint on the allure of gang culture for youngsters living on the bottom rung of Paris' socio-economic ladder. Sciamma's film cuts a fine figure on BD with its richly-saturated 2.40:1 1080p imagery and lively DTS-HD MA 5.1 sonics. Extras are limited to a trailer and brief (English language) interviews with Sciamma and lead actress Karidja Touré.



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TOP 10 TELEVISIONS

All prices are approx and may have changed

- 1 Sony KD-75X9405C → £7,300 ★★★★★**
 This giant TV offers an irresistible blend of top-spec Ultra HD visuals and bassy, immersive audio. The direct LED backlight provides nuanced contrast; HDR support is promised via an imminent firmware upgrade. *HCC #250*
- 2 Samsung UE65JS9500 → £6,000 ★★★★★**
 Not cheap, but that's the only real downer about Samsung's range-topper. The super-bright 4K panel is ready for incoming HDR/UHD BD content; performance is excellent. *HCC #246*
- 3 LG 55EG960V → £3,800 ★★★★★**
 LG's second-gen 4K OLED display boggles with its black levels and detailing, and is a joy to drive via the WebOS 2.0 interface. No HDR support via HDMI, though. *HCC #250*
- 4 Samsung UE55JS8500 → £2,300 ★★★★★**
 While shorn of some of the features of the JS9500 flagship (most notably the full-spec One Connect box), this step-down HDR set still packs a picture-quality punch. *HCC #251*
- 5 Panasonic TX-50CX700 → £900 ★★★★★**
 4K needn't be the preserve of those with big wallets seeking big displays. This 50-incher impresses with its Firefox-powered UI, vibrant colours and slender design. *HCC #250*
- 6 Sony KD-55X8505C → £1,300 ★★★★★**
 With neither the large speaker array or ultra-slim design of more expensive Sony 4K TVs, this modestly-priced Android set's main attraction is its sharp, colour-rich visuals. *HCC #251*
- 7 Loewe Connect 55 → £2,800 ★★★★★**
 Superb video processing and onboard PVR functionality are the highlights of this 55in 4K screen, but the lack of UHD streaming services, and a clunky interface, disappoint. *HCC #249*
- 8 Panasonic TX-55AX902 → £3,000 ★★★★★**
 Superior screen uniformity and crystal-clear detailing abound with Panasonic's pricey flagship LED screen, but motion processing isn't perfect. *HCC #244*
- 9 LG 65UF850V → £2,500 ★★★★★**
 A good (but not brilliant) all-round package, mixing a 4K IPS panel, WebOS 2.0 interface and a sleek design. Image quality suffers from average blacks and fussy motion. *HCC #249*
- 10 Sony KD-65X9005C → £3,500 ★★★★★**
 This set's stunning design – it's Sony's thinnest ever TV – and colour-rich, sharp 4K visuals impress. However, the Android TV OS feels a little undercooked at present. *HCC #249*

TECH INFO: TELEVISIONS



What? No plasma?: The TV market is now dominated by LED-lit LCD screens. Manufacture and sale of plasma display panels (PDPs), which previously came into play above 42in, has ceased. With LED comes newer technologies. 4K models with a native resolution of 3,840 x 2,160 should at least be on your audition list if you're thinking of a new display; curved models are a consideration if you want to impress the neighbours. Look out for sets claiming support for HDR content, which is part of the forthcoming UHD Blu-ray spec.



Active or Passive: At the beginning of the 3D era, most TVs featured the Active system that uses relatively expensive, powered 3D specs to deliver full-res images to each eye. Passive 3D TVs, which are now more common, have a filter over the screen and use non-powered specs with polarising filters. The glasses are cheap as chips, but the resolution of Full HD 3D is halved to 540 lines horizontally (but remains at 1,920 vertically). The same halving occurs with a 4K screen. Some brands offer both Passive and Active models, depending on the panel used. Glasses-free 3D, heralded by Toshiba's early ZL2 TV, hasn't caught on. The tech is still being worked on, though.

TOP 5 BLU-RAY MOVIES

**Fast & Furious 7: Extended Edition**

A robust AV presentation (including bass-rich DTS-HD sonics) and good bonus features make this another essential purchase for fans of the stunt-packed motor franchise.

★★★★★

**CHAPPIE**

The third sci-fi from director Neill Blomkamp (*District 9*, *Elysium*), *CHAPPIE* feels like a mixture of *Short Circuit* and *Boyz n The Hood*. Entertaining then, and this BD release looks as crisp and detailed as they come.

★★★★★

**Exodus: Gods & Kings**

This big-budget biblical epic from Ridley Scott doesn't capture the narrative highs of *Gladiator*, but dazzles with its SFX-laden set-pieces and looks and sounds astonishing on this hi-def platter.

★★★★★

**Big Hero 6**

Energetic 'toon based on a Marvel comic, *Big Hero 6* mixes supervillain battles with a warm, touching narrative. Disney's hi-def disc offers a crisp 2.39:1 encode and effects-laden DTS-HD MA 7.1 mix.

★★★★★

**Interstellar**

Christopher Nolan's monster-budget cerebral sci-fi is a real Blu-ray showcase, with its IMAX-shot footage deserving of the biggest screen you can find, and Hans Zimmer's score sounding simply stunning.

★★★★★

Top 10 BLU-RAY PLAYERS

All prices are approx and may have changed

- 1**  **Oppo BDP-103D → £600 ★★★★★**
 Oppo's first deck for two years was worth waiting for. The universal BDP-103EU featured a class-leading build and all manner of bonus goodies, including twin HDMI inputs. AV performance was faultless, and the onscreen menus superb. This newer model, the BDP-103D, adds Darbee Visual Presence processing for you to play with. *HCC #228*
- 2**  **Pioneer BDP-LX88 → £1,300 ★★★★★**
 The Japanese corp returns to the disc-playing high-end with a universal deck that weighs more than your AVR and drips with user tweaks and processing features. Stonking performer. *HCC #246*
- 3**  **Oppo BDP-105D → £1,100 ★★★★★**
 This heavyweight deck builds upon the premium picture performance of the BDP-103D with a wealth of audiophile upgrades – if you're serious about music, check it out. *HCC #234*
- 4**  **Arcam FMJ UDP411 → £1,200 ★★★★★**
 Pristine visuals – including upscaled SD – and a classy sonic performance grant this Arcam instant appeal. The design and build is commensurate with the premium price tag. *HCC #244*
- 5**  **Sony BDP-S7200 → £220 ★★★★★**
 A Sony deck without the curious angular design, the BDP-S7200 offers SACD support, hi-res audio streaming and 4K upscaling that's worth investigation. Not too pricey, either. *HCC #239*
- 6**  **Pioneer BDP-LX58 → £500 ★★★★★**
 Short on 'net content and a bit slow in use, but these are minor complaints – this model (which ranks below the BDP-LX88) is a gorgeous, thoroughbred Blu-ray performer. *HCC #250*
- 7**  **Panasonic DMP-BDT700 → £500 ★★★★★**
 Claiming THX-certified 4K upscaling and HDMI 2.0 60p passthrough, this mid-range deck from Panasonic is a good partner for a modern display. Great audio option, too. *HCC #237*
- 8**  **Samsung BD-J7500 → £170 ★★★★★**
 This well-priced spinner offers twin HDMI outputs and multichannel phono audio for flexible system hookup, an appealing design, Smart features and solid AV chops. *HCC #247*
- 9**  **Panasonic DMP-BDT370 → £100 ★★★★★**
 A solid deck at a great price, the DMP-BDT370 packs 4K scaling and JPEG playback into its full-width design. Let down by the dated Smart platform, although VOD options are good. *HCC #251*
- 10**  **Toshiba BDX5500 → £120 ★★★★★**
 The key attraction of Toshiba's £120 player (aside from its 3D, Miracast, 4K scaling and DLNA features) is its small form factor and vertical alignment. Good for space-tight setups. *HCC #238*

TECH INFO: BLU-RAY PLAYERS

Matching your deck to your AV receiver: Blu-ray decks are designed to deliver top-notch images but Blu-ray is also about enjoying superior quality sound. When choosing a player, bear in mind the connectivity and decoding features of your AV receiver. If you're still using an older model that doesn't offer HDMI inputs, then you'll need a Blu-ray player with multichannel analogue audio outputs to enjoy decoded hi-res surround sound formats. Similarly, older but still HDMI-equipped receivers may not be able to cope with 3D video/4K output signals, in which case you'll need a deck with dual HDMI outputs – one channelling audio to your receiver amp, the other piping video direct to your TV.

What about the PlayStation?: Sony's console still represents an easy path to hi-def heaven. For a low-budget home cinema system, the £150 PS3 Super Slim makes a decent choice – especially if you like playing games. Control via a joypad is a pain, though, and the console runs more noisily than most BD spinners. The more expensive PS4 is a much better gaming machine, and now available in a 1TB version.



DEMO DELIGHT

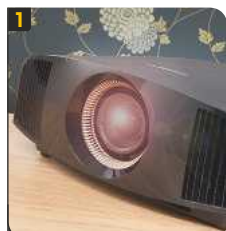
Focus: Not all demo discs need be sci-fi blockbusters – this Will Smith/Margot Robbie heist caper steals the thunder on Blu-ray with a wonderfully crisp and colourful AVC 2.40:1 hi-def encode. Con artists have never looked so cool.

OPPO®
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At the top of everyone's shortlist



TOP 10 PROJECTORS

All prices are approx
and may have changed**Sony VPL-VW300ES** → £5,800

★★★★★

Auditioning the newest, most affordable member of Sony's 4K range is a no-brainer. It loses a shade of brightness and the lens memory feature of its VPL-VW500ES stablemate, but retains the cinematic verve. Top of the class. *HCC #243*

**Epson EH-LS10000** → £6,000 ★★★★★

Debuting a laser light source (30,000 hours) and Epson's 4K enhancement processing, this large chassis model is a cinematic triumph. Essential audition for a dedicated room. *HCC #247*

**JVC DLA-X500R** → £5,000 ★★★★★

Armed with a more adept third generation of the brand's proprietary e-shift technology, the X500R continues JVC's winning ways – contrast rich, sharp and full of tweaks. *HCC #232*

**Epson EH-TW7200** → £1,900 ★★★★★

Priced to appeal to those unable to dabble in the £3,000 market, Epson's mid-ranger is a great purchase. No frame interpolation on offer, but colours, contrast and brightness impress. *HCC #232*

**JVC DLA-X700R** → £7,300 ★★★★★

A hefty chunk more expensive than the X500R, but with an improved contrast performance (and more flexible installation options) that will reward those who splash the cash. *HCC #238*

**Optoma HD50** → £1,000 ★★★★★

With a retweaked user interface that improves upon previous Optoma light-cannons, the 12V-trigger-toting HD50 is a brilliant budget buy. *HCC #239*

**BenQ W1070+** → £650 ★★★★★

An accomplished low-budget DLP model, the W1070+ offers ISF-certified calibration and a 12V trigger in conjunction with a sharp, bright, detailed performance. Bit of a bargain! *HCC #240*

**Philips Screeneo HDPI590** → £1,500 ★★★★★

Neatly designed, the Screeneo offers ultra-short throw projection thrills, albeit at 720p (and the DVB tuner is SD). Good speakers and networking skills complete a nice package. *HCC #233*

**Sony VPL-HW55ES** → £2,800 ★★★★★

Not one of Sony's 4K models, but this keenly priced Full HD projector delivers where it counts, with solid calibration options, simple setup and brilliant 2D visuals. No 12V trigger. *HCC #230*

**ViewSonic PLED-W800** → £500 ★★★★★

Portable (but not battery-powered) LED-lit PJ with 1,280 x 800 res. BDs look decent on a large screen, with nice colour punch, and it incorporates a useful media player. *HCC #247*

TECH INFO: PROJECTORS



Installation: Although projectors can be temporarily placed on a cupboard, stand or shelf situated at the rear of the room (use the adjustable feet on its base to level the image so that it aligns with the screen), a much better long-term solution is to mount it on your ceiling with an appropriate bracket. Projectors can be quite heavy, though, so it's important to ensure that the bracket is attached firmly – ideally, it should be secured to a joist. Position your PJ so that an imaginary line from its lens to the opposite side of the room hits the screen exactly half-way along its width. The location of your screen should therefore dictate where your projector is. A decent tape-measure or laser pointer will help you to determine the position.

Throw distance: Throw distance specifies the distance between the projector and screen for a focused image of given size. As the vast majority of projectors are equipped with a zoom lens, minimum and maximum throw distances are often specified – say, 3.01m to 6.08m for a 100in. 16:9 image. Shorter throw distances are ideal for smaller rooms, and longer ones for larger rooms. Simple.

Throw ratio: Sometimes, a manufacturer will quote a throw ratio rather than a throw distance. This is basically the throw distance divided by the image width. To get the projected image size, divide the distance between projector and screen by the specified figure. Once again, the inclusion of a zoom lens means that upper and lower figures are usually specified.

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Top 10 SPEAKERS

All prices are approx and may have changed



Monitor Audio Gold 300AV → £7,150



MA revamps its Gold Series and we pay serious attention. This big-ticket package excels across the frequency range, offers exquisite design and packs setup flexibility via the dipole/monopole FX surrounds. HCC #251



Q Acoustics 3000 5.1 Cinema Pack → £700

A superior compact package with driver improvements over the previous 2000i series. The two-way cabinets and dual-driver sub combine to offer impressive audio for the money. HCC #247



B&W 683 Theatre 5.1 → £2,750

The first step on the floorstanding ladder in B&W's speaker stable, the 600 Series incorporates new tweeter and bass driver designs and offers absurd value for money. HCC #234



KEF R Series 7.1 → £6,500

A 7.1 array mixing dipolar and direct surrounds, this authoritative package takes its cues from KEF's Blade concept speaker and offers faultless, largescale home cinema sonics. HCC #217



Artcoustic Spitfire SL 7.2 → £17,000

Slimmed-down cabinets now even easier to install on-wall or behind a screen, with a multi-driver design ensuring they're easy to drive to high SPLs. Ideal for dedicated rooms. HCC #233



Wharfedale Diamond 220 HCP → £850

This package offers a lot for less than a grand – two-way surrounds, a potent three-driver centre channel and agile subwoofer. Great movie sound and excellent build. HCC #248



Pioneer S Series 5.0.4 → £2,150

With Atmos-upfiring drivers incorporated into the cabinets (both the front floorstanders and surround standmounts) this is a neat way of upgrading your system. Bassy, fulsome sound. HCC #247



SVS Prime Satellite 5.1 → £1,000

These satellites are the smallest speakers from the US marque – but still sizable enough to deliver an impressive full-range performance. Quality subwoofer, too. HCC #249



PMC Twenty Series 5.1 → £12,500

A classy option for those with an audiophile bent, the Twenty Series majors on an oh-so-expressive mid-range and supremely well-integrated bass. Not an impulse buy, though! HCC #250



Acoustic Energy 1-Series 5.1 → £1,400

The unadventurous design won't appeal to some, but elsewhere this sensibly-priced floorstanding package ticks a lot of boxes. An unflustered sound that likes to go loud. HCC #246

TECH INFO: SPEAKERS



Centre speaker: Handles most of the dialogue and onscreen effects. Should be positioned above or below the screen as close to it as possible. Of course, if you're using a projector screen, it should ideally be placed behind it.

Front speakers: Left and right speakers should be positioned either side of the screen, in line with the centre. Turn the speakers in slightly to face the listener if there isn't an even movement of sound across the front of the room.

Subwoofer: Can be positioned wherever it sounds best or can be tucked out of sight due to the non-directional nature of low-frequency signals. Be aware that close positioning in corners or next to walls can create a boomy effect.

Surrounds: Position alongside the listener, pointing in or slightly behind the ears for a good surround effect. The back wall is not a good position for surrounds – it is, in fact, where you should locate the sixth and seventh speakers (rears) in a traditional 7.1 array.

DEMO DELIGHT

Godzilla: Hollywood tackles the iconic aquatic beastie once again, and the Blu-ray comes armed with a DTS-HD MA 7.1 mix that's dynamic, powerful, aggressive, detailed and expansive from start to finish. Check out Chapter 8's M.U.T.O. circling sequence for a masterclass in precision and control.

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TOP 10 AV RECEIVERS/AV PROCESSORS

All prices are approx
and may have changed**Onkyo TX-NR3030** → £2,500

★★★★★

The current king of Atmos AVR, this 11-channel design enables four height speakers to be added to an existing 7.1 array with ease. Lithe on its feet and with exemplary steering, this is multichannel audio at its best. *HCC #245*

**Denon AVR-X7200WA** → £2,500 ★★★★★

Capable of being upgraded to DTS:X later in the year, and sporting HDCP 2.2 support, this Atmos AVR is as futureproofed as it gets. Only a nine-channel design, though. *HCC #248*

**Denon AVR-X5200W** → £1,700 ★★★★★

Offering Atmos – and Auro-3D via a paid upgrade – the Denon X5200W offers nine amp channels and 11.2 processing. Energetic sound and flexible setup. *HCC #243*

**Onkyo TX-NR838** → £1,000 ★★★★★

A nicely-specced mid-range AVR, offering 5.1.2 Atmos playback (as well as regular 7.1) in addition to HDCP 2.2 support, which will please future-gazers. Crisp-sounding sonics. *HCC #240*

**Arcam AVR750** → £4,000 ★★★★★

If all you want from an AV receiver is vast power and effortless performance, this high-end 7.1-channel beast is tailored to you. Little bonus features beyond audio networking. *HCC #225*

**Datasat LS10** → £10,000 ★★★★★

The 'entry-level' AV slab in Datasat's home audio range, this processor (upgradable to Auro-3D for a fee) is all about precision. Feature-lite, but it sounds phenomenal. *HCC #244*

**Yamaha RX-A3040** → £2,000 ★★★★★

This superb Atmos-ready flagship AVR features a fluid, dynamic sonic signature, slick operation and reassuringly robust design and build. Good in stereo mode, too. *HCC #239*

**Cambridge Audio CXR120** → £1,500 ★★★★★

This Brit-designed 7.2-channel receiver focuses on performance and ignores object-based audio and built-in Bluetooth. Sound quality is assured and construction is monstrous. *HCC #251*

**Pioneer VSX-930** → £500 ★★★★★

Operation could be smoother, but there's no doubting this bargain-priced 7.2-channel AVR (with Dolby Atmos) when it comes to precise multichannel delivery. *HCC #249*

**Sony STR-DN860** → £400 ★★★★★

No sign of Atmos or DTS:X support, but this budget Sony impresses in other areas. Setup and operation is the best in the business and it attacks movie mixes with gusto. *HCC #250*

TECH INFO: AV RECEIVERS



Tackling new heights: A recent innovation in AVR circles is the introduction of Dolby Atmos, the object-based sound format that has taken off in commercial cinemas and is supported in the home by the likes of Onkyo, Pioneer, Denon, Marantz and Yamaha. This requires new height speakers in addition to a regular 'flat' 5.1 or 7.1 speaker configuration. The heights can either be physically mounted in/on your ceiling, or provided via up-firing reflective models. Setup can be complex, but the results are certainly impressive. Atmos-encoded Blu-rays are a bit thin on the ground, but you can use Dolby Surround post-processing with regular 5.1/7.1 soundtracks to get the most from your new AVR/speakers. Rivals to Atmos are Auro-3D, which uses height speakers in a different configuration, and the forthcoming DTS:X. Most AVR brands have already pledged support for the latter.

How much power?: Many of the mass-market AV receiver manufacturers are involved in a specifications race to see who can say their model is the most powerful, which can be confusing for consumers. For instance, both Krell's £7,000 S-1500 seven-channel power amp and Yamaha's £500 RX-V675 both claim 7 x 150W – the important part is that Krell's figure is into an eight-ohm load with all channels driven, and that Yamaha's is with one channel into a four-ohm load, which is hardly a real-world situation. The best advice is ignore the numbers game and get a demo of your desired AVR with the same, or similar, speakers that you intend to partner it with.

TOP 5 BONUS FEATURES

**Kingsman: The Secret Service Revealed**

A lengthy (92-minute) doc that is a must-watch for fans of the kinetic British comic book adaption, this looks back at the movie's origins and delves deep into its production.

★★★★★

**The Science of Interstellar**

From black holes to the search for planets that can support life, this engrossing 50-minute doc (narrated by Matthew McConaughey) explores the scientific rationale that lies at the heart of the recent sci-fi epic.

★★★★★

**Keepers of The Covenant: The Making of Exodus**

Another great *Making of...* doc supporting a Ridley Scott flick, this 153-minute, seven-part feature covers everything you could possibly want to know about the film's production.

★★★★★

**Eaten Alive**

Lurking in the extra features on 88 Films' Blu-ray release of *Zombi Holocaust* is this fascinating 85-minute documentary exploring Italian cinema's love affair with cannibal horror flicks.

★★★★★

**Talking Fast**

This 30-min interactive feature on the *Fast & Furious 7: Extended Edition* Blu-ray works well in place of a regular commentary. Motor-mouth director James Wan is a great host as he discusses key production aspects.

★★★★★

Top 10 SUBWOOFERS

All prices are approx & may have changed

- 1  **SVS SB-2000** → £650 ★★★★★
This follow up to the SB-1000, which incorporates a new 12in driver and revamped Sledge DSP amplifier, offers immense value for money. A mid-sized woofer that imbibes your Blu-rays with potent LFE, the SB-2000 sounds quick and taut, and is a perfect introduction to what a truly good sub can accomplish. HCC #233
- 2  **REL 212SE** → £2,750 ★★★★★
Lush design joins engineering nous in this premium sub with two active 12in drivers supported by a pair of passive radiators. Loud, deep and impactful, your BDs are in safe hands. HCC #246
- 3  **JL Audio Fathom F212** → £5,900 ★★★★★
The US brand arrives in the UK in style – this 2 x 12in, 3,000W brute not only looks gorgeous, it's capable of a mindblowing performance. Got a big room? Get one of these! HCC #214
- 4  **REL S-5** → £1,600 ★★★★★
A step up from REL's affordable T series, this 12in model is large and weighty, with a performance level to match. Fast and tight but capable of dropping very low indeed. HCC #234
- 5  **Bowers & Wilkins PVID** → £1,200 ★★★★★
One of the coolest-looking subs on the planet, B&W's PVID uses DSP trickery to craft an opulent low-end performance. The touch-sensitive OLED display is pure class. HCC #212
- 6  **Eclipse TD520SW** → £3,000 ★★★★★
This twin 8in woofer, driven by ICEpower amplification, aims for ultimate speed and tone – and succeeds. Simply put, the TD520SW is worth every penny of its asking price. HCC #249
- 7  **BK Electronics P12-300SB-DF** → £475 ★★★★★
Bass heads can get outrageous value for money in the shape of BK's overperforming 12in sub. A front-firing model is also offered, and other finishes knock the ticket down to sub-£400. HCC #247
- 8  **JL Audio E-Sub e112** → £2,050 ★★★★★
This 12in, 1,500W model from JL Audio's 'entry-level' line seems pricey, but its performance, design and tuning options make the investment oh-so worthwhile. HCC #240
- 9  **REL Habitat 1** → £1,300 ★★★★★
With its LongBow wireless system and wall-mountable design, REL's newest woofer is aimed at those seeking discreet bass. Twin 6.5in drivers work fast and with considerable grip. HCC #231
- 10  **SVS PB-2000** → £750 ★★★★★
The ported sibling to the SB-2000, this woofer uses the same driver and amp arrangement, but in a far larger cabinet. Bass goes deeper, but not at the expense of finesse. HCC #243

TECH INFO



Why use more than one sub?: Using two subwoofers (or perhaps four) should, in theory, bring huge rewards in terms of bass performance. But remember that LFE is a tricky beast to control. Running two subs may simply double problems in your room like room boom and suck-outs, where outgoing and reflected bass sounds cancel each other out. If you have some flexibility in where you place subwoofers, trial and error may well throw up some interesting results. The acoustics wizard Floyd E Toole (his book *Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms* is fine bedtime reading) suggests one LFE sub to either side of the room may be best for accuracy while placing them in the front corners would be best for overall bass power. Yet there is no hard and fast rule as to what will work best for every room, and you may find that simply using one (large) subwoofer is preferable as it's the easiest to get sounding right.

DEMO DELIGHT

Fury: The DTS-HD 5.1 track of Brad Pitt's tank drama is truly a thing to savour, with the audio engineers striving hard to deliver a packed, detailed soundfield that puts you right in the action. And, with its frequent artillery explosions, it's no surprise to find the LFE channel getting a thorough workout. Shells hit deliciously hard with taut bass throbs, while the eponymous tank's rumbles will scare your pets.

Top 5 CONSOLE GAMES



The Witcher III: Wild Hunt

RPG fans will lap this up. Combining a brilliant (if grim) narrative with great game mechanics, sparkly HD visuals and an exhaustive playing time, ...*Wild Hunt* makes *Skyrim* seem like a distant memory.

★★★★★



Mortal Kombat X

The king of beat-'em ups, NetherRealm Studios' newest entry into the popular franchise is strewn with gore, plays well and even lets you fight as the Predator if you fork out for the DLC upgrade...

★★★★★



Batman Arkham Knight

The concluding part of Rocksteady's Batman trilogy gives players an immense world to explore – everything here is bigger and better than before – and the moody, cinematic visuals are a treat for your display.

★★★★★



The Order 1886

Sony's puzzle-infused actioner may prove a little short in run-time for seasoned gamers, but it's graphically sensational – we love the use of the 'Scope ratio – and the multichannel audio is a treat.

★★★★★



Dragon Age: Inquisition

Finished with *Skyrim*? Then pick up this third instalment in the *Dragon Age* fantasy RPG series. A great-looking title, with plenty of side-quests littered around its vast open world to keep you adventuring for hours.

★★★★★

TOP 10 ACCESSORIES

All prices are approx and may have changed

- 1 Now TV box → £10 ★★★★★**
 An unqualified bargain, this Wi-Fi VOD streamer from Sky (and built upon Roku hardware) brings BBC iPlayer, Demand 5 and the Roku Channel Store to any HDMI-toting telly, plus subscription access to Sky Movies and Sky Sports. The quality of the adaptive bitrate streaming is impressive, and the £10 tag gets you P&P and an HDMI cable. *HCC #226*
- 2 Devolo dLAN 650 Triple+ starter pack → £120 ★★★★★**
 This package makes Powerline networking fast (claimed at up to 600Mbps) and easy. The three-port Ethernet extender is sleekly designed, and provides a regular plug socket, too. *HCC #239*
- 3 Dune HD Base 3D → £250 ★★★★★**
 A media player for the AV enthusiast. Full-width and fully-featured, it provides support for 3D BD rips and much more, with a slick user interface and plenty of connectivity. *HCC #235*
- 4 Amazon Fire TV Stick → £35 ★★★★★**
 Half the price of the standalone Amazon Fire box, this HDMI stick outguns its Chromecast and Roku rivals with more potent processing and a slicker UX. A brilliant add-on to any TV. *HCC #248*
- 5 QNAP HS-251 → £300 ★★★★★**
 Adding HDMI connectivity to a NAS device is surprisingly useful – and this slim-line model from QNAP is styled to grace your living room. Flawless media playback and responsive. *HCC #248*
- 6 Sony SRS-X11 → £60 ★★★★★**
 An affordable palm-sized Bluetooth speaker with internal rechargeable battery, Sony's SRS-X11 is supremely portable and sounds decent for the money. A neat little gizmo. *HCC #249*
- 7 Philips Hue → £180 ★★★★★**
 These Wi-Fi enabled lightbulbs might be expensive (this £180 starter pack includes two, plus the Wi-Fi bridge) but making your own multicoloured lighting scheme is a blast. *HCC #220*
- 8 HDAnywhere mHub → £1,000 ★★★★★**
 An impressively flexible multiroom solution that allows HD video and audio to be sent via Cat cable to four displays from multiple sources. Includes HDMI mirroring, too. Handy. *HCC #240*
- 9 Sony PlayStation 4 → £350 ★★★★★**
 The PS4 offers a killer gaming experience, with the under-the-hood power resulting in great-looking games. 3D Blu-ray playback has now been added via firmware. *HCC #229*
- 10 Philips SW750M → £130 ★★★★★**
 A multiroom-ready speaker that works with the Spotify Connect service, this curved cabinet offers a decent, punchy sound for the price tag. No Bluetooth, DLNA or external hookup. *HCC #246*

TECH INFO: MEDIA PLAYERS



What about my TV?: Most flatscreen TVs from the major brands (Sony, Samsung, Panasonic, LG, Toshiba and Sharp) also incorporate media player functionality, using Ethernet or Wi-Fi to stream from your home network, or from plugged-in USB drives. Most modern Blu-ray players offer this, too. However, file support is rarely as extensive as on dedicated devices from the likes of Western Digital and A.C. Ryan, and our experience shows some are more adept at playback from USB than over a network. Nor (obviously) is a TV or BD player portable. If your media collection extends beyond JPEGs and MP3s into lossless audio rips and esoteric HD video formats, then a standalone player is a good investment.

Storage: You can, if you really want, store all your files on a plethora of USB drives, or on your PC, but it's best to get a NAS (Network Attached Storage) device for simplified sharing of your media across a network with multiple players, such as one from Netgear's ReadyNAS range (pictured). These dedicated devices often offer RAID array file backup, and are managed via browser software. Storage capacity can be anything from 1TB to 12TB and beyond.



TOP 5 BLU-RAY/DVD BOX SETS

**The Decline of Western Civilisation Collection**

A four-disc Blu-ray set for Penelope Spheeris' brilliant trio of films documenting the Los Angeles music scene throughout the 1970s, '80s and '90s. Lots of extras to enjoy, too.

★★★★★

**The Wire: The Complete Series**

The award-winning war-on-drugs drama hits Blu-ray reframed at 1.78:1 (it was originally broadcast at 1.33:1) and looking good. An 85-minute Q&A is among the extras.

★★★★★

**The Long Good Friday + Mona Lisa**

Two of Bob Hoskins' most iconic roles presented in an extras-packed boxset and given thoroughly impressive HD transfers – both look wonderfully filmic.

★★★★★

**The Avengers: The Complete Series Five**

For this 1967 24-episode run, agents Steed and Peel gallivant around in gaudy colour rather than black-and-white, and image quality on this seven-disc set is superb.

★★★★★


**Twin Peaks: The Entire Mystery**


Both seasons of the US cult TV series and the prequel flick ...*Fire Walk With Me* are given a fan-pleasing 10-disc BD release, sporting 7.1 DTS-HD audio and a treasure trove of bonus bits.


★★★★★


Top 10 SOUNDBARS & SOUNDBASES


All prices are approx
& may have changed


- 


Canton DM75 → £450 ★★★★★
Bigger and bolder than the already excellent DM50 (which retails for £100 less), Canton's sturdily-built soundbase speaker lacks HDMI inputs but makes up for it with Bluetooth streaming and a brilliant 2.1-channel performance packing weight, scale and detail. Simplistic, understated design. *HCC #243*
- 


Sony HT-XT3 → £450 ★★★★★
A great-sounding soundbase blessed with HDMI connectivity, HDCP 2.2, Wi-Fi, Bluetooth, multiroom support, screen mirroring and app control. There's little to complain about. *HCC #250*
- 


Yamaha YSP-2500 → £800 ★★★★★
An HDMI-switching 'sound projector' using Yamaha's Beam tech to craft impressive surround sonics from its drivers. Efficient sub, plenty of detailing and fun/useful app control. *HCC #243*
- 


Cambridge Audio TV5 → £300 ★★★★★
Twin 6.5in bass drivers lend the TV5's sound some decent low-end heft, but not to the detriment of the rest of the soundstage. An enjoyable, balanced listen. Easy to use. *HCC #245*
- 

Q Acoustics Media 4 → £400 ★★★★★
A no-nonsense offering from the speaker specialist, which ignores HDMI inputs and daft DSP modes in favour of creating a nuanced, solid 2.1 soundscape. *HCC #238*
- 

Monitor Audio ASB-2 → £1,000 ★★★★★
This premium proposition marries Monitor Audio's C-CAM drivers with AirPlay and DLNA music streaming. Performance is exemplary – powerful and polished in equal measure. *HCC #229*
- 

DALI Kubik One → £800 ★★★★★
The Danish speaker brand brings a slice of glamour to your setup with this stylish soundbar. No HDMI or digital decoding but it packs a tight, lively and nuanced sound. *HCC #248*
- 

Philips Fidelio B5 → £450 ★★★★★
Detachable battery-powered side speakers let you enjoy both genuine surround sound and straight 2.1 (there's a wireless sub). And each speaker offers Bluetooth hookup. Innovative. *HCC #249*
- 

Arcam Solo Bar/Sub → £1,300 ★★★★★
This pricey combi from audio specialists Arcam delivers a heavyweight, pristine 2.1-channel performance. Four-in, one-out HDMI (including 4K passthrough) is welcome. *HCC #249*
- 

Orbitsound A70 → £500 ★★★★★
Not overly specified – there's no HDMI, for instance – but this elegant 'bar/sub combi just about justifies its price tag with an enveloping and very well-balanced performance. *HCC #251*

TECH INFO: TV PLATFORMS



TV addicts – go free, or pay-to-view?:

The landscape of the UK television industry has changed hugely in the last decade. The analogue switch-off has created a competitive market in free-to-air platforms, while Sky and Virgin Media are squaring up to the likes of EE TV, Amazon Prime and Netflix. Deciding which service is right for you can be complex, and you may find your needs are best catered for by a combination.

Sky+HD: The long-running satcaster offers a plethora of HD channels, with content including recent movie releases, live sports and sought-after US shows. Hardware options include the 2TB dual-tuner PVR.

Virgin Media TiVo: The cable giant offers a three-tuner PVR (1TB) with intelligent TiVo recording tricks, catch-up apps (including Netflix and Spotify), and over 240 channels (depending on package). Premium Sky content can be added on a monthly basis.

Freeview: The common option when it comes to TVs and set-top boxes. Freeview offers 13 HD channels (depending on regional roll-out) plus SD and radio. No contract fee.

Freesat: Satellite service offering a similar – but not identical – channel lineup to Freeview, delivered to your HD flatscreen via a dish but without a subs cost. As with Freeview, budget-priced STBs are available.

YouView: This relatively new kid on the block integrates the UK's main catchup portals directly into a backwards EPG. Again, channels are broadly similar to Freeview and there's no contract. Humax (PVRs) and Sony (TVs) are leading the hardware charge.

Top 5 BACK-CATALOGUE BLU-RAYS

**Charlie Chaplin: The Mutual Comedies**

Exquisite restorations of the 12 shorts that the little master made for the Mutual Film Corporation in 1916/17. And this two-disc BD comes with some worthwhile bonus bits.

★★★★★

**Blood and Black Lace**

Mario Bava's genre-defining 1964 slasher makes its hi-def debut with a dazzling new 2K restoration that really gets the best out of the film's bold colour palette, alongside an exhaustive array of supplementary features.

★★★★★

**Goodfellas: 25th Anniversary Edition**

As far back as we can remember we always wanted a new 4K restoration of this Martin Scorsese gangster classic. And now we have one, with some new extra features, too.

★★★★★

**The Third Man**

StudioCanal takes a second stab at releasing this celebrated 1949 Brit-noir starring Orson Welles, rewarding buyers with an excellent image taken from a 4K restoration plus some new documentary material.

★★★★★

**The Day The Earth Caught Fire**

The highlight of the BFI's 'Sci-Fi: Days of Wonder' festivities, this stunning Blu-ray restoration should introduce this underrated British disaster flick to the wider audience it deserves.

★★★★★

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TOP 5 PVRs

**Virgin Media TiVo, £subscription**

This triple-tuner PVR offers ultimate recording flexibility, useful features – you can undelete deleted shows! – and awesome TiVo functionality. A no brainer if you're in a cable area

★★★★★

**Sky+HD, £subscription**

Sky's channel choice is second-to-none and its twin tuner 2TB PVR is a perfect partner. The recent EPG tweak is welcome and Anytime (the push VOD service) is brilliant for catching up on new movies

★★★★★

**Panasonic DMR-HW220, £250**

Panasonic's PVR mixes a 1TB hard drive with its Smart Viera functionality and media streaming – so at £250 it's an absolute steal, regardless of the uninspired design

★★★★★

**Humax DTR-T4000, £subscription**

This YouView-based PVR is required to get BT Sport's new Ultra HD channel – available to those with BT fast fibre and a BT TV sub. Easy to use and with 1TB of storage

★★★★★

**EE TV Smart Box £subscription**

This quad-tuner 1TB PVR, from the mobile/broadband corp, offers innovative Replay 24-hour channel recording and great Smart device streaming. Needs more catch-up though

★★★★★

TOP 5 HEADPHONES

**Sony MDR-HW700DS, £800**

Comfy cans supplied with an HDMI surround processor, enabling multichannel audio to be fed to a virtual 9.1-channel soundstage. The effect is superb – great for late-night listening

★★★★★

**Oppo PM-1, £1,100**

Audiophile-grade, using planar magnetic driver designs, and with a lush design and build. The sound quality of the PM-1s is superb, so while these are undoubtedly costly, buyers won't be disappointed

★★★★★

**Lindy Cromo NCX-100, £100**

A cost-effective domestic option and great for travelling, these noise-cancelling 'phones (which can also be used as a normal passive design) feature a pleasant, balanced sound

★★★★★

**PSB M4U1, £220**

Aimed at both home and on-the-move use (and supplied with a carry case and two cable options), the M4U1s offer solid bass response and impactful highs. Build quality is good, as is comfort

★★★★★

**AKG K550, £200**

The styling of these closed-back cans is reassuringly 'classic' and the sound signature is surprisingly open and spacious. Use them for movie watching and you'll enjoy a good sense of scale and weight

★★★★★

TOP 5 SYSTEMS

**Panasonic SC-BTT505, £600**

Two-way driver arrangements in these grown-up looking speakers (plus a dizzying range of features) make this a great purchase. Big, dynamic sound, with strong dialogue

★★★★★

**Samsung HT-J7750W, £800**

Samsung's top-dog in its 2015 lineup is similarly styled and specc'd to last year's H series model. It has a powerful, dynamic sound, but is a little rough around the edges

★★★★★

**Harman/Kardon BDS470, £650**

Harman's 2.1 system eschews 'net TV and streaming features, but majors in heavyweight build quality and solid AV performance. We tested a 2.1 iteration – 5.1 is also available

★★★★★

**LG BH8220B, £650**

With its silver finish, this is a suitable one-box system to partner with LG's flatscreen TVs, with a commendable, if slightly lacking in HF finesse, sound. Additional features including CD-ripping to USB. Handy

★★★★★

**Onkyo HT-S7705, £650**

This Atmos-capable AV receiver and speaker package is an ideal entry-level setup for a forward-looking system. Loaded with features (including Wi-Fi and Bluetooth). Just add a BD deck and you're sorted

★★★★★

HOME CINEMA

Choice

→ IN THE NEXT ISSUE

Ultra HD Blu-ray We talk tech with the Blu-ray Disc Association

Pimp your PlayStation 4! How to beef up the next-gen console's HDD

Monster mash The best big beasts on film

→ ON TEST

Marantz AV8802A processor Philips 55PFT6550

Full HD TV **DALI Zensor Pico 5.1 speakers**

Cambridge Audio CXU Blu-ray player **Onkyo**

TX-RZ800 AV receiver Samsung UE48JU7000 TV

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CONTENTS SUBJECT TO CHANGE – BUT ONLY FOR THE BETTER

ISSUE
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AV AVENGER

Firmware updates can keep hardware ticking over as new standards arise. But, says **Steve May**, they can also turn a slick setup into a non-working nightmare

YOU KNOW WHAT? I hate media servers. Much like Joss Whedon's Agents of SHIELD, they will always let you down.

You wouldn't expect Blu-ray discs to go from round to square overnight or your record player to develop an aversion to vinyl. Both are fixed, immutable things. But there's no such certainty with today's network gadgets.

Consider the curious tale of Plex and Amazon Fire TV. I've a lot of time for both. The Fire TV stick is a fantastic over-the-top streamer, while Plex is a clever media player that serves content within a lovely graphical interface. Together they worked so well I purchased additional Fire TV sticks just to access Plex all around my house. Then one morning Plex didn't want to work anymore.

My son wailed inconsolably that his Japanese cartoons no longer streamed (somewhat odd behaviour for a man in his twenties, I admit). The Plex app blithely informed us that the server could not transcode the video. Why was Plex trying to transcode anything, I puzzled? It seems the one thing all sane AV-Holics fear the most had happened: a firmware update.

I really shouldn't have been surprised. **My garage is a graveyard of abandoned media playing devices, boxes that once promised file nirvana that have now fallen from grace.** There are Popcorn Hours whose time is up, Western Digital TV boxes that have gone south, and many more too difficult to pun off.

A little Bird told me...

So what happened? Ian Bird, a software guru from Plex, informed me that the company had decided to enforce the non-playing of files that exceeded

'the device's capabilities in terms of decoding.'

If the Plex app thinks a file is too highly compressed, it resorts to transcoding. Unfortunately my low-cost QNAP server (an otherwise brilliant HS-210) doesn't have any transcoding chops, so nothing happens.

Meanwhile, the Amazon Fire TV specification states that it can 'only' handle H.264 to a maximum profile level of 4.0, which should be enough for most stuff – but apparently is not. The original Fire TV Plex client would just try and play a file (and in my experience largely succeed). The new version now checks the source code, panics a bit, then throws in the towel if it's not completely happy.

'Out of the box, we want our application to provide a good/stable video playback experience. However, this was dangerous with the unspecified behaviour of what happens to a device when you ask it to do too much,' chirped Bird.

Plex is working in clever workarounds to fix the problem, saying it's committed to the Fire TV platform. I tried moving to a Roku HDMI stick with Plex (on the face of it a similar gizmo to Amazon's), but that won't run at all with the latest version of Plex server software for my particular NAS. See how easy it is to lose the will to live with this stuff?

My solution is to upgrade the QNAP server to something a good deal more powerful, and one that will either transcode for the Fire TV stick or become compatible with Roku. But this is akin to having to buy a new flatscreen because your PVR has decided your existing telly just isn't good enough anymore. Which is obviously nuts. Media servers? I'm beginning to think ordinary mortals should steer well clear ■

Do you keep all your hardware up-to-date with firmware? Let us know: email letters@homecinemachoice.com

Steve May's garage is so full of ancient AV that he once went in to find a toolbox and spent the afternoon listening to quadraphonic long-players





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